

AMERICAN FRUIT GROWER MAGAZINE



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Practical Peach Pruning

By W. S. Perrine

TO PERPETRATE another article on peach pruning after so many most excellent papers and bulletins have appeared on the subject may seem as unnecessary as carrying coals to Newcastle. However, I may be able to put the same principles in a little different way—a way that may prove helpful to the average fruit grower.

The Long System for Young Trees

With two more seasons of experience, I am convinced more strongly than ever that the long system is the one for young trees. It consists of a very light annual tipping back, or no tipping at all, with considerable thinning out of the larger limbs after the scaffold and the secondary limbs are formed. Only enough thinning out is done to encourage the maximum development of small twig growth or growing points. This multiplying of the growing points not only contributes to the total growth of the tree, but it also tends to slow down the individual twig growth to the proper vegetative condition for fruit production.

The Problem With Young Trees

The aim, then, is to prune to secure the most rapid growth of the tree, having a strong, open framework; to secure this rapid growth and strong framework with as little pruning as possible; and to contribute to the multiplicity of small growths, thus slowing down the individual growth of the fruiting type. However, a good deal of pruning must be done to keep the top thin and open enough to let in sufficient light to encourage the small twig growth and to keep it alive and vigorous. This is much more difficult to accomplish on young trees than on old ones. Unless the framework is very open, the small twigs low down may perish in a single season.

What to Cut

To bring about the recommended results, few, if any, one-year limbs or twigs should be cut out after the first year's pruning. Cut out the two-year limbs that are getting too big, leaving the small two-year and one-year twigs. A few of the strong one-year growths may need to come out if no summer pruning has been done, especially those running toward the center in the top. A lot of time is spent and worse than wasted in cutting out the previous summer's twigs that seem too thick. It takes much less time to cut out the few larger limbs, resulting in a real thinning out for the season—a result which clipping out the small one-year twigs fails to accomplish.

Summer Pruning

If summer pruning is resorted to at all, it is usually carried to an extreme and is done in too great detail, with a consequently harmful effect. A little early thinning out in the tops on trees that are making an excessive growth may be done with profit. It tends to keep the little growths lower down from being smothered out before the season is over. Trees that are making a normal growth after proper winter pruning need very little if any pruning in the summer. All trees making an excessive growth require

more pruning to keep them in proper shape.

Light Tipping Changed to Cutting Back

We have already seen that the problem with young trees is to slow down the individual growths to fruiting wood condition. We have pointed out that this is best brought about by light tipping and sufficient thinning out of the larger limbs to let in enough light to encourage and develop the vigorous growth of the small twigs.

The problem with the older trees is just the reverse. It should be the object to speed up the individual twig growth to the desired fruiting type of the wood. This is accomplished by cutting back the main branches and by increasingly severe thinning out of the larger small limbs as the tree gets older. Cultivation and fertilizing also play very important parts in determining the amount of growth. Since the pruning is done in the fall and winter, the other operations should be varied according to the way the tree is growing. For instance, when there is no crop and plenty of rainfall, the desired growth can be obtained with less cultivation and with much less nitrate.

Why a Good Annual Growth is Important

There are three important reasons for the necessity of a good annual growth:

First, the fruit buds are formed only on new wood. The larger the number of buds, the more likely we are to get a large crop.

Second, the buds seem to be more hardy. Almost every winter we lose a part of our buds by winter killing. If a good growth makes the buds even slightly more hardy, resulting in more crops or more partial crops, the extra effort expended to get such growth will be well repaid.

Third, on older trees, good annual growth keeps the trees in a strong, healthy condition, a condition which will enable them to hold up a good crop when we get it. Old trees that make very little growth soon become doaty and weak and break to pieces even with a light to moderate crop.

Moreover, extremely cold winters will often kill the weak trees outright, while the wood of the strong, vigorous trees will probably be only injured. When this injured wood is covered by a good annual growth, it soon becomes a fairly strong frame, able to hold up a pretty good load of fruit.

How Much Growth is Desirable?

There is reason in all things. A good normal growth on older trees of from 12 to 18 inches on the main limbs is about right. A growth of from two to four feet or more on older trees is, I think, excessive. Such a growth indicates too much or improper pruning or more cultivation and nitrate than is desirable. To secure such a growth adds greatly to production costs and will cut down the yield.

On the other hand, a very small growth that requires little or no annual pruning, while it lessens orchard ex-

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Three-year-old (fourth summer) Hale peach tree before and after pruning. The branches were rather severely thinned out and those remaining were headed back slightly

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Present Day Viewpoint Toward Bud Selection and Rootstocks

By C. E. Durst

THE NOVEMBER issue of the AMERICAN FRUIT GROWER MAGAZINE contained the first installment of an address on bud selection and rootstocks which the writer gave at the convention of the Southern Nurserymen's Association at Atlanta, Ga. That installment pertained to the fundamentals of plant inheritance and to the bud selection problem. The conclusion was reached that improvement by bud selection of ordinary variations is impossible and that bud sporting or mutation must occur before selection can be of value in perpetuating the variations. The present installment, which is given below, deals with the rootstock problem, which, in the opinion of many horticulturists, is the most important question before the American fruit grower today.

The Rootstock Problem

Leaving now the question of bud selection, let us consider the question of rootstocks. Let us first go out into any commercial orchard. Careful examination will show marked differences in the size, vigor, health and productivity of the trees of a given variety. What are the causes of these differences?

If my analysis of bud selection is the correct one, then such differences are rarely due to bud variations, for fundamental differences cannot result from bud selection except when sporting has occurred, and sporting, as we have seen, occurs with extreme rareness in the average fruit variety.

Another possible cause lies in soil differences. Soils vary considerably even in areas which appear to be uniform. Without doubt, soils are the cause of a considerable part of the variations found in fruit trees in a given orchard. However, soil differences cannot account in full for the variations found in trees. Quite often a poorly growing tree which is apparently healthy is partly or wholly surrounded by vigorous and productive trees. In such a case, the roots of the superior trees and the inferior tree are growing in practically the

same soil, for tree roots in orchards overlap to a large extent. Several experiment stations have carefully studied this question, and, by applying statistical methods and checks of various kinds, they have concluded that while soil differences will account for part of the differences found in orchard trees, they will not account for all of them.

It is likely that cultural differences may account for some of the variations found in orchard trees, but in most commercial orchards the trees receive quite uniform care in regard to cultivation, fertilization, spraying and pruning. It is unlikely that cultural differences are responsible for any appreciable proportion of the differences which exist in orchard trees.

There is one remaining possible cause for the differences, and that is differences in rootstocks. Many experiment stations have been investigating this subject in recent years, and it seems that they are reaching the conclusion that rootstocks are responsible to a large extent for the variations found in orchard trees and that the rootstock question is an extremely important one in the nursery business and in commercial orcharding.

Effect of Various Species

It has been common knowledge for years that various species of rootstocks have various influences on the scion or bud of a given species. Peaches are worked on peach seedling roots to adapt them to ordinary soils, on plum roots to adapt them to moist soils and on almond roots to adapt them to high, dry soils. The Chinese peach is sometimes used in the West as a stock for peaches to adapt them to alkaline soils.

The Myrobalan plum is often employed to adapt plums and prunes to heavy, moist soils. Peach and almond roots are used for plums growing in shallow soils and under dry conditions.

Sweet cherries on Mazzard roots are generally considered more productive and longer lived than when worked on Mahaleb roots. In the West, sweet cherries are also considered more hardy and better adapted to moist soils when worked on Mazzard roots. Mahaleb roots are believed by many to make sweet cherries more resistant to die-back, to make them bear earlier, and to make them dwarfish in nature. Mahaleb roots are more commonly used in nursery practice for both sweet and sour cherries, because the trees can be grown more readily on such roots.

We are all aware of the difference in behavior of citrus trees which result from working the buds on rootstocks of various kinds.

Pears and apples may be worked on each other, but in both cases the trees seem to be short lived as a result. Dwarf pear trees are produced by grafting scions on Angiers roots; larger fruit also results from this combination. Winter Nellis pears do better on quince roots than on pear seedling roots. The Kieffer pear appears to do best on Chinese sand pear or Kieffer seedling roots. Occasionally apples are dwarfed by grafting them on French or English Paradise stocks. Half-dwarf apple trees are produced by working scions or buds on Doucin roots.

Myrobalan plum roots are used for apricots to adapt them to soils too wet or heavy for apricot or peach roots. For light, well-drained soils, peach roots are best for apricots.

Effects of Different Seedlings of the Same Species

The instances mentioned will serve to indicate the effect of various species of rootstocks on the scions or buds of a given species. Until recently it was thought that such influences as these were the only kind exerted by rootstocks. It had not occurred to anyone that the different

seedlings of the same species would have different effects. Since the re-discovery of Mendel's law, we have been able to understand plant life much better than ever before, and investigators have been considering the subject of rootstocks from this standpoint. The studies and experiments of recent years show that different seedlings of the same species show marked differences in the effect on the resulting trees.

If we will recall now what I said earlier in this article about differences in hereditary composition, we can better understand this matter. Our common fruits are cross pollinated to a very large extent. This means that we are constantly bringing together different sets of hereditary units and that numerous combinations of units are the result. In confirmation of this point, we need only to consider the differences which may be found in any lot of apple seedlings, for instance. The chances are very great that no two will bear the same kind of fruit, and they will probably differ also in other important characteristics. The reason for this is that each seedling is the result of a different combination of hereditary units. If seedlings vary in the character of fruits produced, they will probably vary also in other important characteristics.

When we use such seedling stocks upon which to place scions or buds of a given variety, we have a situation in which a uniform lot of scion material from a hereditary standpoint is worked on root material that differs in hereditary composition. Is it not to be expected that such variable rootstocks should exert varying influences on the resulting trees?

Practical Results

What I have just said is merely the theory of the situation, but the theory seems to be borne out by practical results which have been obtained.

At the Maine Experiment Station it was found that several thousand

(Continued on page 22)

Liability for Injury to Fruit Trees

By Leo T. Parker

GENERALLY, the owner of property or land on which trees grow may legally prosecute persons destroying or injuring the trees. However, the amount of damages which may be obtained from an individual who illegally damages a standing tree depends upon the circumstances surrounding the case.

For example, in a quite recently decided case the court in effect said that where it is disclosed that a wrongdoer cuts trees and removes them from the land by honest mistake, the damage which the owner may rightfully expect and recover is the true value of the trees before they are cut.

In another case, where fruit trees were cut, the court held the owner entitled to recover an amount equal to the actual value of the trees, and that the reasonable value may be determined by the testimony of expert witnesses and based upon the approximate value of the fruit which may have been borne in later years.

Amount of Damages is Important Factor

The most important consideration in litigations of this kind is the amount of money which the owner of damaged or destroyed trees may legally demand of a wrongdoer.

In view of the numerous cases that have already been decided on this point, an accurate knowledge is obtainable as to the proper methods of arriving at the value of the destroyed or injured property.

For illustration, in another quite recently decided case, the court held that the reasonable value of a fruit tree may be determined, with fair accuracy, in consideration of the money which may have been received in the past from the sale of the fruit borne by it, but that the anticipated profits may not be used, conclusively, as a basis on which to determine its value, because anticipated profits are speculative and form an uncertain basis for calculating values.

Where the value is arrived at by an estimate based on the past fruit production of a tree, considerable and important deductions must be made, generally, because the tree may or may not be normal at the time of its injury.

If no other means are available for arriving at the fair value of a damaged or injured tree, its value may be proved by expert witnesses or neighbors who are acquainted with the property. Moreover, it has been held that the owner of property which is destroyed may be so situated that the use of the property is worth more to him than its actual value based on the market price.

An example of this situation is supplied by the records of a controversy wherein it was disclosed that the damaged fruit trees were utilized for the purpose of supplying shade to the occupants of a dwelling. In this case the actual value of the trees was con-

siderably more than they may have been had the trees been situated in an orchard.

Offers of Compromise

It is important to know that where there is a disagreement of the actual value of the tree which has been destroyed or damaged, generally speaking, the owner may offer to compromise the case or agree to accept a specific amount of money in settlement of the disputed claim, and such offers cannot be shown or disclosed by the wrongdoer in the later litigation which may develop. In other words, the wrongdoer is not permitted to testify that the owner has agreed to accept a certain amount to compromise the case. Therefore, the owner of an orchard which is injured or damaged may freely converse with the person who effected the injury and take every reasonable precaution and effort to settle the case out of court, without fearing that such offers may be held against him if litigation is necessary. Furthermore, where an owner agrees to accept a certain amount in settlement of a claim, the offer must be accepted by the wrongdoer within a reasonable time.

For example, where there was a dispute of the value of destroyed property, the owner presented an offer to the wrongdoer to settle the claim for a specific amount. The wrongdoer withheld his answer until at a con-

siderably later date, when he sought to hold the owner to the original offer. However, the court held that where a compromise offer is made by an owner of damaged property the offer must be accepted within a reasonable time. Otherwise, the owner is not bound by the offer.

As to what period of time may be regarded as reasonable depends upon the various conditions. It has been held that 10 days is a reasonable and sufficient period of time in which to accept an offer.

However, to avoid controversy from this point, the owner of damaged or injured trees may stipulate at the time a compromise offer is made that such an offer is subject to immediate acceptance.

Liability for Damage by Fire

Occasionally there is litigation between orchard owners and railroad companies or the like for damages to trees destroyed by fire. The records of a recently decided case supply accurate information as to the rights and liabilities of orchard owners for damages effected from this source.

An apple orchard contained 900 trees, some of which were destroyed and others partly injured by fire, which occurred as a result of a passing locomotive setting fire to dry grass. The railroad company contended that it was not liable for the resultant damages because the orchard owner previously had cut the

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The Cranberry Industry of Oregon

By W. S. Brown
Oregon Agricultural College

THE BEGINNING of an industry in a new country is an adventure into the unknown. This is true of agricultural enterprises in general, and especially is it applicable to the cranberry business. The Pacific Coast has many conditions of climate, soil, harvesting and marketing which are different from those in the eastern part of the United States. Cranberry growing, therefore, has had to pass through a period of pioneering as severe as if it were located in a country other than that in which the cranberry was first developed. It is hoped that something of the history of this pioneering, combined with an account of the general status of the industry, may be of interest.

Historical Facts

Some of the explorers of the Lewis and Clark expedition made notes in their diaries of finding cranberries near the mouth of the Columbia River and of purchasing them from the Indians. The early settlers in Oregon used to pick wild cranberries on the Clatsop Plains for their own use.

Cultivated cranberries were first grown in Oregon by Charles Dexter McFarlin, who was born and raised on Cape Cod. In 1874, he and his brother discovered and planted some exceptionally fine wild cranberries which grew near their Cape Cod home. This variety they named the McFarlin. In 1885, McFarlin came to Hauser, Coos county, Oregon, and planted a bog, setting out vines he brought from Massachusetts, the McFarlin variety predominating. This bog is still in existence, though badly overgrown with weeds.

A year or so after McFarlin planted his bog a French gardener named A. Chebot, a friend of McFarlin's, planted 35 acres in Pacific county, Washington. Chebot brought cuttings for his planting from the eastern part of the United States, but unfortunately he did not seem to be so well acquainted with the ravages of cranberry insects as did Mr. McFarlin and introduced a number of insect pests and plant diseases at that time.

In 1911, E. N. Bennett organized a company and put out the first large bogs in Clatsop county, Oregon. At the present time, there are about 100 acres in good bearing in Clatsop county, 34 acres in bearing in Coos county, Oregon, and about 500 acres in Pacific county, Washington.

Weather Conditions

Climatic conditions are very different in this region from those found in eastern and middle-western parts of the United States. Snow is seldom seen on the bogs in the winter, so that no winter flooding for protection of the vines is needed. There are, however, plenty of spring frosts, both early and late. These cold snaps, combined with the early growth made by cranberry vines, give rise to the problem of frost control, which is one of the greatest problems confronting the cranberry growers in the Northwest.

While on most of the bogs in Oregon the water supply is plentiful enough, flooding for frost control in spring and summer has not been practiced as systematically or as thoroughly as it should have been. This is due in many cases to the fact that these bogs have settled rather unevenly so that when the high points are sufficiently covered to protect them against frost, the lower parts are flooded so deeply as to hurt the blossoms.

In recent years, smudging has been

tried out for protection against frost during the blossoming period. So far this is the experimental stage and has not met with very favorable results.

Rainy weather is another climatic condition which is sometimes faced at harvest time. Usually the fall weather is delightful along the coast

Water Supply

In general, Oregon bogs are well supplied with water. Water is sometimes brought to the bogs by means of gravity flow from reservoirs, but in most cases the supply is pumped from one of the several lakes which lie along the coast in the vicinity of the



The stumps in this picture show why the cost of clearing cranberry land is high

but now and then a rainy year, like that of 1924, occurs, when it is practically impossible to get the berries into the storage house in a dry condition. Great pains are taken to overcome this difficulty. Trays containing the fruit are stacked, leaving alternate spaces for ventilation. Windows are left open to create a draft. In spite of all these precautions, many of the berries spoil. Better methods of drying after picking will have to be devised or the growers will continue to experience considerable loss in wet years.

Soil Problems

While much of the bog land in Oregon is covered merely with weeds and small brush, a considerable portion has to be cleared of very thickly standing stumps of spruce, elder and willow. These stumps may be resting upon old logs embedded in the bogs. To clear the ground of these stumps and submerged logs is heavy work, costing from \$50 to \$100 an acre. On the larger bogs this is done easily with a donkey engine, though sometimes a track laying type of tractor is used. The wheel-type tractor soon buries itself in the log and cannot be used for clearing. It is very important that sunken logs be removed to a depth of at least 16 inches below the surface to allow for subsequent settling of the bog.

Varieties

In the northern part of Oregon, in Clatsop county, the McFarlin is undoubtedly the leading variety. Howes is the leader among the later varieties, while the Searles is becoming more popular as it is being tested out, and Centennial is giving satisfaction to some of the growers. In southern Oregon, in Coos county, the leading variety is the Searles, followed by Bennet Jumbo and McFarlin. Several other eastern varieties have been tried out but are of minor importance commercially in this region.

Insect Pests

Most of the insects common to eastern bogs, with the exception of the gipsy moth and a few others, have been brought to the Pacific Coast. They are controlled for the most part

by spraying with nicotine-sulphate sprays, combined with fish-oil soap as a spreader.

Cranberry Diseases

Space will not permit a discussion of this subject. It is sufficient to say that nearly all the more important rots are found in Oregon. They may be controlled under normal weather conditions by timely applications of Bordeaux mixture, combined with fish-oil soap.

Spraying the Bogs

Spraying equipment in Oregon consists of portable high pressure spray outfits equipped with long leads of hose and batteries of nozzles and is taken from one place to another on the jikes.

In southwestern Washington, however, an improvement has been made on this plan by the installation of stationary spraying plants on the bogs of most of the growers. These stationary plants consist of four or five horsepower engines, connected with triplex pumps and supplied with liquid from spray tanks holding from 200 to 500 gallons. The liquid is pumped through galvanized iron pipes, the size of which will depend upon the length of the leads. Usually one-inch pipe is employed, unless the leads are more than 1000 feet. Faucets are placed at convenient distances along the pipe for hose connections. The spray gun is used for distributing the mixture in most instances and a pressure of 200 to 300 pounds is maintained. While the initial cost is somewhat greater, the ease of application and saving in the cost of labor soon more than compensate for the heavier investment.

Weeds

The weed problem, East or West, seems about the same. The long growing seasons in Oregon give greater opportunity for weeds to prosper than is given them in the East, perhaps, but on the other hand the grower has much greater opportunity of fighting these weeds during the whole year than he would have in the East.

Resanding has never been used as much as it should have been for the control of weeds in Oregon bogs. Horse tail rush, Spanish bayonet, salal, young alders and willows, and buckbrush may be kept down by hand pulling or the use of weeding hooks. The grasses and sedges are usually best controlled by mowing. Where they become too thick, it may be more economical to re-scap the bogs and replant them.

Cost of Preparation and Production

The cost of bringing a bog into bearing will vary considerably, depending upon the nature of the clearing, the size and shape of the bog, sand supply, number of stumps, water supply, and so on. Generally speaking, under Oregon conditions, the

operations of developing, handling, ditching, stumping, planting, diking and weeding, together with incidentals, buildings, etc., will run from \$900 to \$1100 an acre besides the cost of the land.

While no detailed cost accounting studies have been made, growers agree that cranberries can be produced at an average cost of from \$1.70 to \$3.50 for a one-third barrel box, depending upon management, age of bog, and overhead charges.

Yields

Most cranberry
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page 25)



Hand picking McFarlin cranberries. This variety grows so close to the ground that scoops are seldom used for harvesting

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The Retail Store Problem

THE WRITER recently saw apples priced at 10 cents each in a Chicago delicatessen. A few days ago he noted some in a hotel in Minneapolis which were priced at eight cents each or two for 15 cents. A great many of the delicatessens, it is true, are selling apples at five cents each, but even this price is too high considering the prices received by the growers. At five cents each, most apples would bring from \$5 to \$7.50 a bushel.

Many of the grocers are still pricing apples at 25 cents for three pounds. This seems to be their standard selling price no matter what the cost may be. Apparently lower prices are looked upon by many grocers simply as opportunities to make greater margins of profit. The idea of reducing prices to consumers and thus making larger profits from increased sales, and incidentally helping growers to move large crops, does not seem to have a place in their psychology. Apples may come and apples may go, but high retail prices seem to go on forever.

Produce dealers, co-operative associations and growers in general have recognized the retail store problem as a serious one for many years, but in view of the conditions prevailing in recent months, the problem is now recognized more clearly than ever before. Without a question, the high prices charged for apples by retailers are responsible for the decrease in consumption of the king of fruits.

The big question is, of course, what to do about the matter. The California orange, raisin and prune growers and some of the northwestern apple growers have increased consumption of their products by sending out men to visit grocers and delicatessens and help them to arrange exhibits and to show them how greater profits can be made from increased sales at reasonable prices than from reduced sales at high prices. This plan could be used effectively by growers all over the country if they were organized, but it cannot be used under present conditions in the same way that western folks are using it.

We believe, however, that unorganized growers can accomplish considerable along this line by individual work. A heart to heart talk with most retailers, particularly Americans, will do some good, especially if it is re-

peated by more than one grower. The best results will be secured in most cases by reminding the retailers in a courteous, convincing manner of the conditions in the fruit industry and of their general responsibility in the situation. While some results will follow such appeals to sentiment, the best results will come from showing the retailers how they can increase their profits by lowering prices and thus increasing the number of sales. The Almighty dollar will talk loudest.

With most retailers, gentle persuasion will bring the best results. However, some of the more flagrant violators can be moved best by a good "bawling out." No one, not even the hardest boiled citizen, enjoys such treatment, and it often has more effect than is apparent.

It is not a bad thing also for growers to be acquainting consumers with the conditions and suggesting that they ought to be able to get fruit at lower prices. This will cause some of them to speak to their grocers about the matter. Grocers are certain to be influenced by the thought of their customers.

In some cities local growers' associations have accomplished great good by running advertisements in the daily papers in which people were advised of crop conditions and told what prices they should expect. In a few cities the authorities have advertised fair price lists which have proved effective. Reports reached us recently that the produce dealers in Pittsburgh are now giving out fair price lists in printed advertisements. The method is said to be accomplishing good results.

The Logical Conclusion

ANDREW MELLON has made a number of statements that have attracted attention, but nothing he has said has made a more-lasting impression on people, particularly fruit growers and farmers, than his famous remarks about farm relief.

Andrew stated in effect that if the government were to apply the principles of the American tariff to our basic agricultural products, the laboring classes would be compelled to pay higher prices for their foods. Such a situation would reduce their net incomes and lower their buying power. The result would be a depressing effect on business in general.

But Andrew didn't follow out his line of reasoning to its logical conclusion. At least, he didn't do it on paper. If he had done so, he would have stated that it would be a good thing for the government to still further reduce the prices received by food producers. This would permit laboring men to buy their foods at still lower prices and would increase their net incomes and buying power. If Andrew's kind of reasoning is correct, such conditions should help business in general.

It is difficult to understand why Andrew did not bring out this point. We cannot feel that the thought failed to present itself to his fertile mind. Possibly it did not seem like good diplomacy to bring out this side of the question under the circumstances existing at the time.

Of course, Andrew's line of reasoning does not take into consideration the welfare of food producers. Their state of affairs does not seem to be of consequence to him.

Read Gould's Articles Again

THE LAST installment of Mr. Gould's series of articles on the peach industry was printed in the November issue. We do not want these articles to pass into history without a further word regarding them.

When we discussed the preparation of these articles with Mr. Gould, we asked him to present a picture of the outstanding factors in the development of the industry and to give such suggestions regarding future procedure as he deemed wise. While we had a general

idea of what we wanted, we did not know just what viewpoint Mr. Gould would take or what points he would bring out as the important ones in his articles. We must confess we were curious ourselves to learn just how Mr. Gould would work out the problem.

Now that we can look backward, we are frank to say that we have been surprised and highly pleased with the outcome. It is a difficult thing to pick out the outstanding features in a situation that completely surrounds us. Usually, it remains for people living long after an event has happened to pick out the more important features and show them in their proper relations. But it was not so in the case of the peach industry. Mr. Gould, living right in the midst of the situation, has given us a picture of the industry in which the principal factors stand out in bold relief. At the same time he has presented many of the related details and has shown us their proper bearings.

Now that the entire story has been printed, we believe every reader will find it profitable to get out the back issues and read the series again in its entirety. It will be a good thing, we believe, to save the issues for future reference.

Articles on Pruning

EVERY winter it has been our policy to present articles on important phases of pruning by competent authorities. The same policy will be followed again this season.

In this issue, an article by W. S. Perrine on peach pruning is presented. Mr. Perrine furnished us an article two years ago that brought a great deal of favorable comment. His viewpoint after two more years of experience will, we are sure, be interesting and valuable to growers generally. Mr. Perrine is recognized as one of the best fruit growers in Illinois, and he produced a large crop of peaches and apples this year.

We already have on hand an article on grape pruning in California by Prof. Frederic T. Bioletti of California, who is recognized as one of the best authorities on grapes. This article will appear in January.

Prof. A. H. Hendrickson of California has furnished us an excellent article on pruning the Bartlett pear, which will also appear in the January issue. This article clearly presents a lot of valuable information that will be helpful to growers all over the country.

Prof. C. D. Matthews of North Carolina has been making an investigation of apple pruning, and an article by him on the subject will appear in the January issue.

Then, to add the finishing touches to the January issue, we are going to present an article by Prof. R. H. Roberts of Wisconsin, who is one of our old standbys when it comes to pruning matters. This article will relate to spur pruning, a subject which is important in relation to annual and biennial bearing of fruit trees.

We know you will find these articles valuable and that you will look forward to them with interest. If you have any friends who would like these articles, send us their names and addresses, and we shall gladly send them sample copies.

Lowden's Plan Endorsed

REPRESENTATIVES of 80 farm organizations meeting in St. Louis, Mo., on November 18, voted endorsement of farm relief plans outlined by ex-Governor Frank O. Lowden of Illinois. His plan contemplates the application of the principles of the American tariff to basic agricultural products with the object of raising the domestic prices above world market price. Because of his championship of the cause of agriculture, Mr. Lowden is regarded as a likely candidate for president in 1928.

Rambles of a Horticulturist

By C. E. Durst

IN THE November issue I described the visit of the pomological party to the famous berry growing section in the Puyallup and White River Valley of western Washington. Boarding the train again at Tacoma, we went north to Seattle, from whence we went east over the Great Northern Railway to Wenatchee. This city, called the Apple Capital of the World, is located in the center of the famous Wenatchee district, which is the leading commercial apple producing section of the world.

The Wenatchee district is located in central Washington at the junction of the Columbia and Wenatchee rivers. The valley itself is about 40 miles long and from one-half to four miles wide. Several small tributary valleys are part of the district. The district contains about 22,000 acres under irrigation. The land is almost solidly planted to fruits, mostly apples. Most of the ranches are small, ranging in size from five to 20 acres, as a rule. There are several large orchards of from 40 to 100 acres. The American Fruit Growers, Inc., are one of the largest operators, their 15 orchards aggregating about 800 acres. At the north end of the district the valley connects with the Okanogan Valley, which in turn extends to the Canadian border.

Frost Damage Is Low

While the district is distinctly a valley, the damage from spring frosts is remarkably low. There is always a good movement of air through the valley, thus providing for excellent air drainage. This circumstance gives the valley a distinct advantage over many other sections. Smudging is practiced to only a small extent at Wenatchee, and yet there is little damage from spring frosts.

The rainfall at Wenatchee is from nine to 10 inches a year, most of which falls in the winter. Irrigation water is obtained from the Columbia, Wenatchee and Icicle rivers. Most of the water is handled by gravity, but some of it is pumped as high as 400 feet in order to irrigate certain lands. Most of the orchards receive a steady flow of nine gallons per acre per minute. This amount equals a rainfall of about three feet during the season. Most of the water, after leaving the main ditches, is distributed through underground tile or pipes.

The weather becomes quite warm at times during the summer at Wenatchee. The extremes range from about 20 degrees below zero to 115 degrees above zero and are reached in about two years out of five. The low temperatures sometimes cause considerable winter killing.

A large variety of fruits is grown at Wenatchee. Apples are the leading crop. During the 1925-26 season the district shipped 16,983 cars of apples, 600 cars of pears, 117 cars of cherries, 115 cars of peaches, 60 cars of apricots, 17 cars of fresh prunes, 315 cars of mixed fruits, and some small fruits.

Apple Is Leading Fruit

As the figures indicate, the apple is by all means the leading fruit crop. One gets the impression in visiting the valley that apples are about the only fruit grown. On first thought, it would seem to be better if the production were more diversified, but the fact that apples grow so uniformly

and packing, and on efficient marketing. In the early days numerous varieties were planted. The number is settling down to a very few at the present time. A tree census taken in 1924 shows that the leading varieties constituted the following percentages of the production: Winesap 40.2, Jonathan 13.8, Delicious 12.7, Rome 8.4, Spitzenburg eight, Stayman 7.8, and all others nine. The Winesap has been gaining rapidly in acreage and the Jonathan, Delicious, Spitzenburg, Rome and Stayman have been remaining about stationary.

Early Orchards Set Close

The early apple orchards were set quite close, sometimes as close as 18 to

decidedly interesting. The leaders are modified early in the life of the trees and four or five branches are left to form the framework. These are trained to an upright or vase form. The long system is used. Moderate to light pruning is being practiced by most growers, since heavy pruning encourages sucker growth under the heavy irrigation employed and tends to throw the trees out of bearing. Unpruned trees do better than over-pruned ones. The trees are decidedly open, especially after the fruit begins to reach size. This is no doubt largely responsible for the high color obtained. Little or no damage is reported from sun scald.

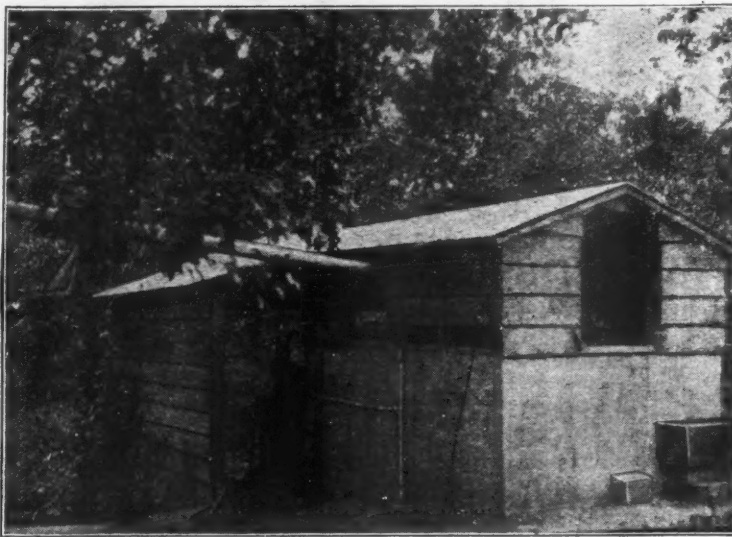
Stationary Spraying Outfits Popular

I was much interested in the spraying methods employed at Wenatchee. This district leads all others in the use of stationary outfits. A. R. Chase, county agent, states that about 1000 of the 2100 growers of the district have stationary outfits and that more growers are installing them as rapidly as possible. The motors, pumps and mixing tanks are placed in convenient locations, usually in a central spot. Standard outfits manufactured by reputable companies are in most common use, though in the early days of this system assembled outfits were often installed. Electric power is most commonly used. Pipes carry the spray material to different parts of the orchard. In many orchards the pipes are simply run through the trees, being held up by the branches at a height that will permit wagons to pass beneath. The suggestion for this method was originally made by Prof. O. M. Morris of the state agricultural college. In other orchards the pipes are simply run over the surface of the ground. Connections are installed at convenient intervals. One hundred-foot sections of hose are most generally used. The growers use high pressures, some outfits working regularly at 400 to 500 pounds and supplying from four to six spray guns.

Oil Sprays Giving Promise

Codling moth, leaf roller and woolly aphids are the most serious pests. Oil sprays have brought the scale under control. Summer oil sprays have proved helpful in checking multiplication during the growing season. The oil sprays are attracting great attention at Wenatchee. I saw a two-acre plot in the orchard of F. H. Moses which had been sprayed three times with a commercial oil spray called Volck. There had been no dormant or calyx sprays and no arsenic had been used, yet the codling moth ap-

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The central plant of a stationary spraying outfit on the ranch of Frank Nelson at Wenatchee

well answers this question to a large extent.

The district is practically planted solidly to apples; it has therefore about reached its limit in production. Any increases hereafter made, if any, will have to come almost entirely from better selection of varieties and better cultural methods.

Apple growing is undergoing rapid evolution. Growers are satisfied that their success will depend on growing the best varieties, on the production of high quality fruit at the lowest possible cost, on first class grading

25 feet each way. This method brought maximum production in the early life of the orchard. Many growers have retained these thickly planted orchards too long for their own good. Most growers are gradually thinning the trees. Thinning is now one of the big problems of the district, and the real problem is to get growers to do the thinning as early as it should be done. The new orchards are being set at greater distances. Many trees are being set 30 by 30 feet apart with fillers between of apricots, peaches or pears. The pruning methods are



A general view of apple orchards in the Wenatchee Valley. (Courtesy Great Northern Railway Company)

Loading Freight Cars to Prevent Claims

By Edward Dahill, Jr.

Freight Container Bureau, American Railway Association

IT IS probable that three-quarters of the breakage found in solid carloads of fruit could be prevented if more attention were given to the loading of the cars. In many cases this improvement could be effected by certain small but important changes in the loading or bracing methods employed.

A well-loaded car of first-grade fruit arriving in good condition is a satisfaction to the grower, the shipper and the receiver. It is an unhappy ending to a box of good fruit to be broken open, trampled under foot and swept out onto the ground to decay. Surely all the attention which the grower devotes to proper selection of trees, cultivation, fertilization, spraying, picking, packing and shipping, is given only with the idea of satisfying the consumer's desire for good fruit.

The loss which occurs when boxes in transit are broken or crushed is not covered by the refund to the grower of the nominal value of the shipment. The economic loss to the community at large is not thus compensated. Unnecessary waste in food-stuffs causes a diminished supply and makes valueless the time and labor that was expended in the production of the article.

Tight Loading is Imperative

Correct carloading is tight carloading. When the boxes are placed tightly against each other, and when the load is braced securely in the car, the load will be found in good condition at destination. But if the boxes are not tight in the car, and if space remains that will allow the boxes to shift, it is certain that the motion of the car will cause damage to many of the boxes and their contents.

Two methods for securing a tight load by filling all unused space in the car are in general use. One is known as the center-gate method and the other as the spacing-strip method. Either method is satisfactory, providing that it has been used properly and that the arrangement of the bracing is correct.

In Figures 1 and 2 are shown these two methods. Both cars are loaded with California grapes in lug boxes. Figure 1 shows a properly constructed center gate, while Figure 2 illustrates the use of one-inch boards between two stacks.

Proper use of either method requires that all space in the car not occupied by the containers be filled by the bracing. An unfilled space of more than four inches (sometimes only two inches in such loads as citrus boxes) will permit enough shifting of the load to cause breakage. Figure 3 shows a load of grapes in lug boxes in which was present at least six inches of slack. The lug boxes in the upper layers were free to move, and they did move, with the result that all the boxes in the bottom layer were collapsed and the grapes made unfit for further handling.

Measure the Car and Plan the Load in Advance

Good practice in carloading includes the measuring of the car before loading commences. This will show immediately the amount of space to be filled with bracing. For some packages, the shipper uses a strip of wood six or eight feet long marked in multiples of the length of the box which is to be loaded. By measuring the car wall or the car floor with this strip the space remaining is quickly determined. Some shippers run a row

of boxes along one side of the car and thus find the amount of remaining space that is too small to permit another box to be loaded. This method is not reliable since the carelessness or carelessness of the loader in placing the boxes in the row will determine the amount of apparent space to be filled by bracing. A few of the most

then be found that considerably more time will be used and that the material itself may cost more than a properly constructed center gate

Center Gate Should Occupy All Unused Space

A center gate should occupy all the unused space in the car, the addi-

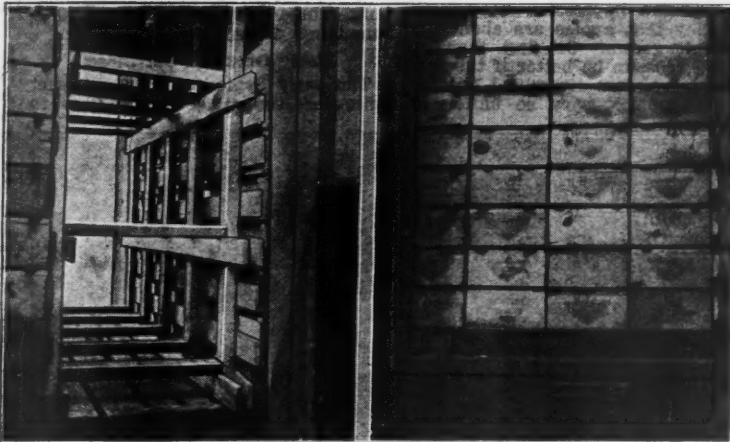


Figure 1.—This picture shows a properly constructed center gate

Figure 2.—One-inch boards placed between the stacks tighten the load

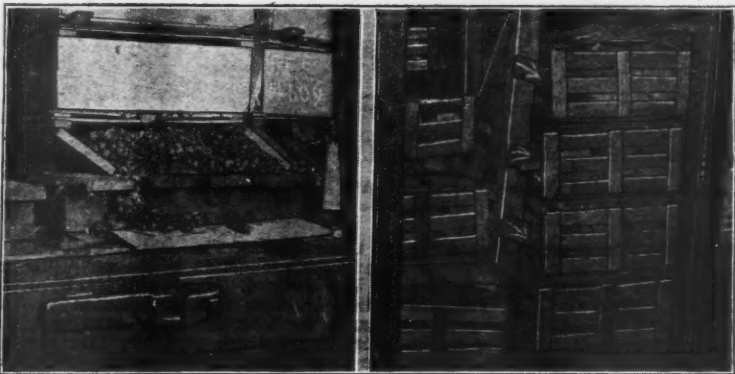


Figure 3.—In this load of grapes there was about six inches of slack, causing all of the boxes in the bottom layer of the car to collapse

Figure 4.—This gate was properly constructed, but the sides were held apart by one-inch boards nailed to the sides of the supports

careful shippers use a steel tape to measure the car, and then refer to a list of figures conveniently placed on the packing house wall to find the difference between the length of the car and the largest possible load.

When the space strips are used, enough sets of strips are placed between the stacks at different points in the load to take up all the unfilled space indicated by the measurement of the car. However, this method is not always practicable, especially when much space is to be filled. It will

tional use of strips between the stacks being uneconomical. The chief reason for breakage found in carloads having a well-constructed center gate is that all the space in the car had not been filled. In loading the car the boxes had not been placed tightly against each other and on reaching the door, the loader had built a gate that filled only the space that was present in the doorway. Good practice in carloading will place all boxes tightly in position. Frequently it is desirable to run a row of boxes along one side of the

car from each end up to the doorway and to be guided by this row when placing the remainder of the load. This guide row is easily placed tightly in position, and any tendency of the remainder of the load to be stacked loosely will quickly be noted. In this manner, all the slack in the car will be left at the doorway.

Unless precautions are taken to insure tight loading, some slack space will be left between the stacks in the load. Usually this space cannot easily be noticed, but it is there nevertheless. After the car has been in motion for some time, this space will accumulate in some one place, usually the end of the car, and the shifting of the load is then possible.

Poor Lumber or Bad Construction Causes Many Losses

Close observation of carloads of fruits which have been damaged by a shifting of the load due to failure of the center gate show that one or both of two reasons will explain the failure. Either the lumber used was not strong enough, being too small or of poor quality, or the construction was incorrect, not enough bracing being used or the arrangement of the various parts of the gate being wrong.

All center gates are constructed essentially in the same manner. There are three sets of members, which can be designated in the following manner: The face members are in contact with the boxes in the load; the supporting members are placed at right angles to the face members and serve to keep them properly spaced and to distribute the forces; and the braces hold the two parts of the gate in position. These different sets of members all resist the forces set up by the motion of the car and pass them on to the adjacent members. It is most important that this transfer of pressures be made from one member direct to the other member and not through the use of the nails. Nails are used only to hold the boards in position and are never strong enough to stand the shocks of transportation.

In Figure 4 there is shown an extreme example of a center gate in which this principle was not heeded. The two sides of the gate were properly constructed, but they were held apart only by the one-inch boards nailed to the sides of the supporting members. It was to be expected that when the first shock occurred the nails would bend slightly and then pull loose, allowing the load to shift. But in this instance not only did the gate collapse, but the braces punched into the ends of the boxes collapsed as well, causing further damage to the fruit.

Placing of Packages at the Center Gate

Some center gates are built with the face members vertical and others are built with them horizontal. The choice of either method depends on the type of box shipped. If the box end is of a solid board, such as in the

western apple box, the face members are placed at right angles to the grain of the box ends. But sometimes the thin side of the box is next to the center gate, as is the case in the California grape lug. If the face members were placed vertically at the center of these side pieces, breakage would be unavoidable. So the face members are placed parallel to the grain. But if this matter is

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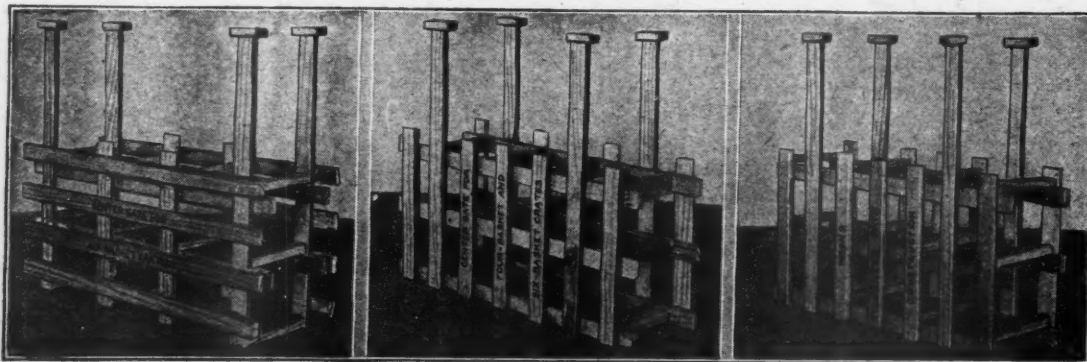


Figure 5.—Center gate with face members placed horizontally, as used for Georgia peach crates, western apple and pear boxes and grape lugs

Figure 6.—Center gate with face members in vertical position, as used for four-basket crates, panelhead boxes and other packages

Figure 7.—A type of center gate construction which is commonly used but which is incapable of meeting heavy strains

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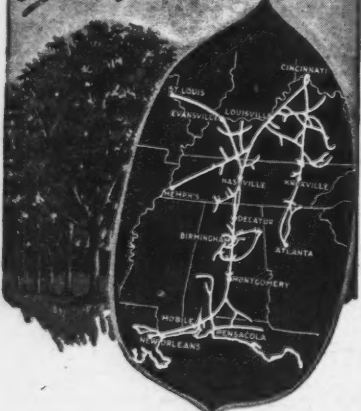
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Combating Mice and Rabbits

Editor, AMERICAN FRUIT GROWER MAGAZINE: Last year mice and rabbits did a great deal of harm to my young apple orchard. I should greatly appreciate it if you would give me information through your mail box department regarding the best methods of preventing damage from them.—F. S. F., Illinois.

ANSWER: An excellent discussion of this subject recently appeared in *Illinois Horticulture*, which was prepared by the Department of Horticulture and the Natural History Survey of the University of Illinois. Since this account fully answers your question, we shall give it to you in full. It is as follows:

"Nearly every season, orchards in some sections suffer serious injury from mice, rabbits, and occasionally from groundhogs or other rodents.

"Mice usually congregate in orchards where there is a heavy growth of some crop, especially if this crop comes up close to the trees. Legumes, both clover, soybeans and cowpeas, offer ideal shelter for mice. Where such crops are grown as cover crops in the orchard care should be taken to remove the heavy accumulations of crop refuse from around the base of the trees before the first of October, and to keep the area immediately around the tree for a distance of three feet from the trunk clean of all cover during the winter time. A number of orchardists in the southern part of Illinois have lessened injury by mice and borers by applying several shovelfuls of clean cinders in a circle about one foot to 18 inches in diameter, immediately about the base of the trees. Where clean cinders are used, no injury has resulted from this application.

"In orchards where mice have been troublesome, they may be poisoned by baits put out in poison bait stations. The following method is used for making the stations:

"Square pieces are made of one by eight-inch boards for the top and of one by six-inch boards for the bottom. The side walls consist of one by one and one-half-inch strips six inches long. The whole is fastened together with four nails. A depression to contain the poisoned bait is cut in the bottom board with a chisel, or, if made at a planing mill, by a group of circular saws.

"Poison stations should be partly concealed by a little brush, prunings, or other material that will afford shelter to the mice, and should be on high ground to avoid standing water and so placed that there will be a circulation of air to aid in keeping the baits dry and in good condition for long periods. They should be examined and refilled as required—at least twice a year.

"The poison to be used in the stations should be made according to the following directions:

"Mix together, dry, one-eighth ounce of powdered strychnine and one-eighth ounce of baking soda. Sift the strychnine-soda mixture over one quart of rolled oats, stirring constantly to insure an even distribution of the poison through the grain. Heat the poisoned rolled oats in an oven until thoroughly warm. Mix three parts of melted beef fat with one part of melted paraffin, and sprinkle six tablespoonfuls of this mixture over the warm poisoned rolled oats, mixing until the oats are evenly coated. Allow the grain to cool, when it is ready for use. If large quantities of the bait are needed, use one ounce of strychnine, one ounce of soda, eight quarts of rolled oats, and one and one-fourth pints of beef-fat-paraffin mixture.

"It is very important that in applying the coating the beef-fat-paraffin mixture be hot and the poisoned rolled oats be thoroughly warm, otherwise it will not be possible to obtain an even coating.

"Rabbits often cause serious injury to trees, especially during the period

when snow or ice covers the ground. Different paints and repellent washes have been advised for use on trees to repel rabbits. Recent experiments carried on by S. C. Chandler of Illinois, show that in captivity at least rabbits will feed on the bark of trees treated with any of these washes. The most effective, and, in fact, the only sure method of protecting trees from rabbits is to encircle the lower part of the trunk to a height of two feet with a protecting guard of wood veneer, or wire screening, or other material that will afford mechanical protection, being careful to apply the guard in such a way that it will not check the growth of the tree. The guards may be removed during the summer, and, in fact, this should be done with veneer guards, as they sometimes act as harboring places for insects. Wire guards, if applied loosely, do not need to be removed during the summer."

Dry Lime - Sulphur

Editor, AMERICAN FRUIT GROWER MAGAZINE: Will you please give me your advice about dry lime-sulphur as compared with liquid lime-sulphur for controlling apple scab and other fruit diseases. I live about eight miles from a railroad station and if the dry material is all right, I would prefer to use it because of the long haul.—J. E. S., Michigan.

ANSWER: Under the conditions you describe, I believe dry lime-sulphur would be a good form for you to use. Investigators in many states have reported good results from it in the control of apple scab and many other fruit diseases. It would not be a good thing to spray peaches with either dry or liquid lime-sulphur during the growing season, as foliage injury would result. For this fruit, self-boiled lime-sulphur or dry mix is more desirable for summer spraying.

As you suggest, dry lime-sulphur can be hauled long distances easier than the liquid form. Another advantage is that the dry form can be stored more easily than the liquid form and with less loss on the average. In using dry lime-sulphur you will need simply to weigh out the required amount, dump it into the spray tank and start the agitator. The material will dissolve quite readily. There may be a little undissolved residue, but this will give you no trouble if you have good strainers. To be absolutely sure of controlling the apple scab and other diseases effectively, I believe you will find it well to use about four pounds of the material to 50 gallons of water. A number of good authorities, however, have reported satisfactory results from three pounds to 50 gallons of water.

Starting Grapes from Cuttings

Editor, AMERICAN FRUIT GROWER MAGAZINE: Will you kindly give me directions for growing grape plants from cuttings.—J. A. R., Missouri.

ANSWER: You can easily develop new grape plants by taking cuttings in the fall or winter from fully matured wood of the previous season's growth. In southern sections, these cuttings can be planted in their permanent place in the fall of the year. In northern sections it is usually best to store the cuttings in pits or in specially built storages during the winter.

The cuttings should be six to 12 inches long, depending upon the variety and the distance between buds. A cutting should have at least two buds. The lower end of the cutting should be cut off immediately below the bud and the upper end should be severed about an inch above the uppermost bud. The cuttings should be tied in bundles of 50 or 100.

In storing the cuttings during the winter, they should be placed in damp sand in a cool place. The sand should not be wet, neither should it be dry. The bundles are usually set

on end and sand is covered over and between them. Some propagators store the cuttings upside down, as it is believed that the bottom ends develop a callus better when handled in this way. Some propagators take the cuttings out of storage in late winter or very early spring and place them upside down in moist sand in a hot bed or greenhouse or in a warm basement to encourage development of a callus growth, covering them with about two inches of sand.

The ground for receiving the cuttings should be plowed and pulverized deeply. Deep furrows should then be opened. The cuttings should be placed at an angle of about 45 degrees. A distance of four to six inches between cuttings is sufficient. The soil should be packed tightly about the lower end of the cuttings, and loose soil should be used at the top of the furrow. The cuttings should be planted sufficiently deep so that when the ground is leveled the uppermost bud will be at about the level of the ground. Clean cultivation should be practiced throughout the season. With good care and good soil the plants will become sufficiently large in one season so that they can be planted to the permanent vineyard.

Approves Our Editorial

Editor, AMERICAN FRUIT GROWER MAGAZINE: As a fruit grower and reader of your excellent magazine, I wish to thank you for your pithy and straight-shooting editorials. I especially enjoyed the one entitled, "Cheaper Than Ever Before," in the September issue. "Bringing More Land Under the Plow" and "Let's Do Our Own Boosting," in the October issue, were also naildrivers.

It can hardly be said that the average fruit grower is riding on the crest of prosperity at the present time. Something should be done, of course. Worth while action, however, must always be preceded by good straight thinking—thinking with the "bushwa" left out. That is what you are giving us. Thank you.—H. N., Michigan.

ANSWER: I am glad to know that the editorials meet with your approval. I am trying to present in these editorials some of the fundamentals in the agricultural situation. I shall appreciate comments from you at any time, unfavorable as well as favorable.

Starting Shrubs from Cuttings

Editor, AMERICAN FRUIT GROWER MAGAZINE: Can you tell me how to start new plants of deutzia, hydrangea, spirea and other shrubs? I should appreciate it very much if you would tell me how to do this and what time of year is best for the work.—W. E. L., Tennessee.

ANSWER: For your part of the country I would suggest that you take cuttings this fall from wood which grew this year. Trim the cuttings to lengths of six to 10 inches.

Plow the ground deeply and pulverize it thoroughly, then open deep furrows. Place the cuttings in the furrows deep enough so that when the ground is leveled the top buds will be about at the surface of the ground. Pack the soil firmly about the base of the cuttings and use loose soil near the surface. Cuttings that are placed at an angle of about 45 degrees in the furrow will suffer less from heaving during the winter than cuttings placed in a perfectly upright position. A large number of our common shrubs can be rooted by this method.

Early next spring you should begin cultivation and this should be followed up carefully throughout the season. With good soil and with good care the young plants will reach suitable size in a single season to plant in a permanent position. However, many persons allow most shrubs to grow two years in the nursery before transplanting them.

Six-year-old Billy was exasperated with the almost continuous squalling of his baby brother.

"I bet I know why he came from heaven," Billy mused. "They put him out."

Coming Horticultural Meetings

ANNUAL MEETING American Pomological Society, Grand Rapids, Mich., November 30 to December 3, in conjunction with meeting of Michigan State Horticultural Society. Secretary, H. C. C. Miles, Milford, Conn.

Annual meeting Michigan State Horticultural Society, Grand Rapids, November 30 to December 3, in conjunction with meeting of American Pomological Society. Secretary, H. D. Hootman, East Lansing, Mich.

Annual meeting Kentucky State Horticultural Society, December 2-3. Secretary, Ben E. Niles, Henderson, Ky.

Annual meeting Washington State Horticultural Association, Wenatchee, December 2-4. Secretary, J. I. Griner, Olympia, Wash.

Annual meeting Virginia State Horticultural Society, Charlottesville, December 7-9. Secretary, W. S. Campbell.

Annual meeting Northern Illinois Horticultural Society, Rockford, December 8-9. Secretary, R. A. Green, Ottawa, Ill.

Western Nut Growers' Association, Forest Grove, Ore., December 8-9. Secretary, C. E. Schuster, Oregon Agricultural College, Corvallis, Ore.

Annual meeting Kansas State Horticultural Society, Topeka, December 8-10. Secretary, James N. Farley, First National Building, Hutchinson, Kans.

Annual meeting New Jersey State Horticultural Society, Atlantic City, December 8-10. Secretary, H. H. Albertson, Burlington, N. J.

Annual meeting Illinois State Horticultural Society, Urbana, December 15-17. Secretary, H. W. Day, Centralia, Ill.

Thirty-sixth annual meeting Connecticut Pomological Society, Hartford, December 16-17. Secretary, H. C. C. Miles, Milford, Conn.

Annual meeting Maryland State Horticultural Society, Baltimore, January 4-5. Secretary, G. R. Cainbey, Silver Springs, Md.

Winter meeting Massachusetts Fruit Growers' Association, Worcester, January 4-5. Secretary, W. R. Cole, Amherst, Mass.

Thirty-eighth annual meeting South Dakota State Horticultural Society, Aberdeen, January 4-6. Secretary, N. E. Hansen, South Dakota State College, Brookings, S. D.

Annual meeting Nebraska State Horticultural Society, Lincoln, January 4-7. Secretary, E. H. Hoppert, Lincoln, Nebr.

Annual meeting New York State Horticultural Society, Rochester, January 12-14. Secretary, Roy P. McPherson, Le Roy, N. Y.

Annual meeting Rhode Island Fruit Growers' Association, Providence, January 14. Secretary, Richard W. Bowen, Apponaug, R. I.

Annual meeting Tennessee State Horticultural Society, Nashville, January 18-19. Field agent, J. L. Baskin, 405 Morrill Hall, Knoxville, Tenn.

Annual meeting Pennsylvania State Horticultural Association, Harrisburg, January 19-20. Secretary, R. E. Atkinson, Wrightstown, Pa.

Winter meeting Montana Horticultural Society, Hamilton. Tentative dates, January 27-29. Secretary, W. E. Pollinger, Corvallis, Mont.

Annual meeting Ohio State Horticultural Society, Columbus, February 1-3. Secretary, F. H. Beach, Ohio State University, Columbus, Ohio.

Winter meeting West Virginia Horticultural Society, Martinsburg, February 10-11. Secretary, H. L. Crane, Morgantown, W. Va.

Farm Bureau Convention

THE EIGHTH annual meeting of the American Farm Bureau Federation will be held at the Hotel Sherman in Chicago December 6, 7 and 8. A feature of the convention will be an address by ex-Governor Frank O. Lowden of Illinois, who will talk on

World's largest Company-owned truck service organization. We have 121 branches in the U. S. — and thousands of dealers.



INTERNATIONAL HARVESTER TRUCKS for Low-Cost Hauling

Everywhere, not only in the United States but all over the world, International Motor Trucks are helping men to make their farming more efficient, pleasanter, and more profitable. These scenes show Internationals working on American and foreign farms.

The trusty motor truck is every bit as important as the automobile on the farm these days. It hauls so many kinds of loads—fast. It saves time and labor, and time and labor are money for the farmer. Time spent on the road with horses and loaded or empty wagon is mostly rank waste. Horse trips take five times too long. All those lost hours should be *working time, producing time.*

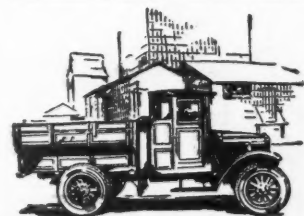
Haul your loads five times as fast, do each half day's hauling in an hour—with an International Truck—and get back to your fields and live stock where your profit is waiting to be made.

International Trucks are made in all the popular sizes—the new "Special Delivery", 1½ and 1½-ton Speed Trucks, and heavier trucks up to 5-ton. Sold through our 121 branches and through dealers everywhere. Write the address below for a catalog.

INTERNATIONAL HARVESTER COMPANY
606 So. Michigan Ave. of America Chicago, Ill.
(Incorporated)



Model 63 International Truck in the dairy business, owned by Harry Marsh of Carlisle, Pa.



Showing William Scott's International, Stewart Valley, Sask. At Swift Current, Sask., when this picture was taken, there were eighteen farmers hauling their crops in International Speed Trucks with grain bodies as shown above.



This International hauls out cotton and hauls back supplies to a plantation at Nazca, Peru.



This International is hauling coffee on La Gavea Mountain near Rio de Janeiro, Brazil.

the morning of Wednesday, December 8.

The first Exposition of the federation will be held in connection with the convention. It will consist of exhibits of county, state and national farm bureaus, co-operative associations and commercial concerns. A special feature will be exhibits of particular interest to women, including a model farm home.

The annual banquet will be held on Tuesday evening, December 7.

Those attending from a distance should secure receipts for railroad fares, as one-half fare will be allowed if 250 or more persons are present with proper certificates.

THE VIRGINIA State Horticultural Society will hold its annual convention this year on December 7-9 at Charlottesville, where there is a new hotel and a nearby armory for housing the exhibits. The Piedmont Fruit Growers' Association, the Chamber of Commerce and other organizations of Charlottesville are all co-operating to make this meeting

the largest and best in the history of the society.

Excellent responses have been received from invitations sent out to manufacturers of supplies and equipment and it is expected that a large commercial exhibit will be on display. Because of the large fruit crop of the season, there is great interest among the horticulturists of the state this year, and an excellent meeting is anticipated.

THE TENNESSEE Horticultural Society is planning to include some very unique features in its program for the annual convention, which will be held at Nashville on January 18-19.

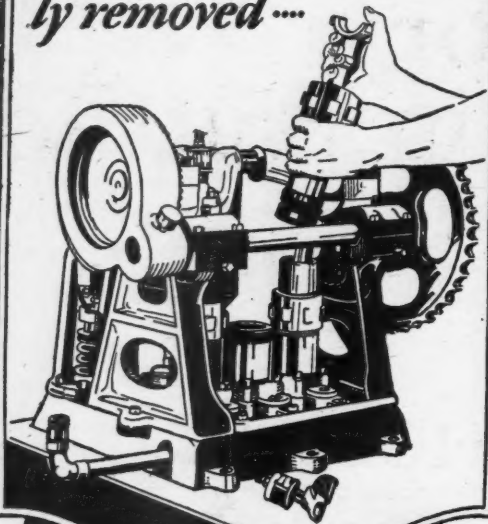
Commercial firms selling supplies and equipment will be encouraged in every way to make a good display, and a large exhibit of materials and equipment is expected. A \$35 prize in gold will be awarded to the champion apple grower in Tennessee. An apple show, made up of apples from east, middle and west Tennessee, will be the feature of the meeting, and a complete

set of prizes will be awarded to the winners in each district. A barbecue will be held in the orchard of W. M. Armistead, where demonstrations of pruning, spraying and other phases of orcharding will be given.

THE NATIONAL Farm School, located at Doylestown, Pa., will graduate a class of boys in agriculture in February, 1927. It is recognized that these boys will not be finished farm operators. The school authorities desire to place them in positions with farmers so that they will be able to secure practical education, and will be pleased to receive applications from fruit growers and farmers who might be interested in employing one of these boys. Anyone interested should write to Grant Wright, student and graduate adviser, Farm School, Pa.

The New York State Horticultural Society will make a special feature of prizes for boys at its annual convention at Rochester on January 12-14 inclusive.

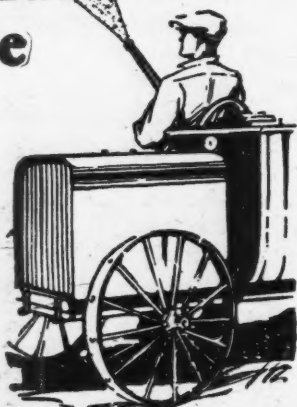
*Any part of the pump
can be easily and quick-
ly removed....*



Power-Strength in This New Hardie

THE new and improved Hardie sprayers offer advantages of design and construction never heretofore present in spraying equipment. There are no enclosed inaccessible parts, yet the self-oiling system is simple and positive in action. The spraying solution cannot mingle with the oil. Plungers that do not leak; die cast removable bearings; silent chain drive; valves that are absolutely tight yet easily removed, all these features enable this new Hardie to deliver tremendous uniform pressure day after day. Sprays farther, wider and longer. 20 sizes and models of sprayers. From \$5.00 to \$1000. Pressure up to 650 pounds. Write for catalog.

THE HARDIE MANUFACTURING COMPANY
Hudson, Michigan



Hardie-Cushman engine gives abundant dependable power. Light, strong Autoplex truck. Dust proof hood when desired. Many other exclusive features.

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THAT WILL IDENTIFY YOUR PRODUCTS
AND INCREASE YOUR SALES—A complete
designing service! WRITE—no obligation
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SHAW GARDEN TRACTOR

Woods—Grass—Leaves
—mow them with 3 foot
Cutting Bar Attachment
on Shaw Garden Tractor.
Also plows, seeds, culti-
vates, runs left machine-
ery. Easy to operate.
Special Offer
Write today for full de-
tails and Special Low Price.
Prompt shipments guaranteed.
SHAW MFG. CO., Dept. AF1 Galveston, Kansas



Send For This Big Free Book

This beautifully illustrated and instructive 32-page book is a text-book that you cannot afford to be without. It pictures and describes your orchard troubles and tells how to control them. It contains a complete spray program, simple and easy to follow—the same program that we follow successfully in our own orchards of over 30,000 peach and apple trees. Free to any tree owner as long as the supply lasts.

Please Write Plainly, or Print, and Mail Today
B. G. Pratt Company, 50 Church Street, New York, Dept. 11.
Please send me your free 32-page book, "Bigger Profits from Spraying".

My dealer's name is
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SCALECIDE

THE COMPLETE DORMANT SPRAY



With the Co-Ops.

AN ANALYSIS of 10,000 reports received by the Division of Co-operative Marketing of the Department of Agriculture shows that 69 per cent of the farmers' buying and selling organizations in the United States are organized on a capital stock basis. About 63 per cent of the total co-operative business is transacted by associations so organized.

In New England 85 per cent of the co-operatives are organized with capital stock, in the West North Central states 77 per cent, in the mountain states 72 per cent, in the South Atlantic states 43 per cent, and in the Middle Atlantic states about 33 per cent. The percentages of the associations organized with capital stock in the leading co-operative states are as follows: Kansas, 92 per cent; Nebraska, 91 per cent; Ohio, 82 per cent; Wisconsin, 80 per cent; Minnesota, 74 per cent; Iowa, 65 per cent; Michigan, 53 per cent; California, 50 per cent; and New York, 31 per cent.

The percentages of fruit and vegetable associations organized with capital stock varied from eight per cent in Missouri to 91 per cent in Minnesota.

It is noteworthy that none of the important fruit growing states show large percentages of co-operatives organized with capital stock.

Apparently, there is a greater tendency to organize fruit and vegetable associations without capital stock than associations handling other kinds of farm products. Fruits and vegetables probably lend themselves better than other farm crops to being handled by organizations having no capital stock.

FARMERS in foreign countries take an active part in the co-operative marketing movement. In Bulgaria, out of 398,304 co-operators, 164,282 are farmers. In Japan, of the 2,729,000 co-operators, 77.8 per cent are farmers. In Lithuania the membership of 140,000 shows 67.5 per cent as farmers. A large Polish co-operative union with 280,000 members registers 37 per cent farmers. Rumania reports 646,332 farmers out of a total of 717,491 co-operators. Finland, in 1922, had 334,600 co-operators, of whom 49.4 per cent were farmers and agricultural workers, while Latvia gives a total of 88,665 co-operators, of whom 36.2 per cent are farmers and farm workers.

The number of farmers in the movement in Sweden has increased 600 per cent since 1910, while the industrial workers amounted to about 300 per cent. In Germany the percentage of co-operator farmers has increased more than 500 per cent, and that of industrial workers only 400.—*Sunkist Courier*.

THE CALIFORNIA Fruit Growers' Exchange is conducting its twentieth advertising campaign this year. The objectives, as in previous years, are to increase the total demand for citrus fruit, to create a preference for California Sunkist fruit and to improve distribution and merchandising by encouraging more rapid turnover.

Magazines, newspapers and posters are to be used. One important change will consist in laying greater emphasis on the lemon-hair-rinse advertising. Another will consist of a newspaper campaign in behalf of hot lemonade, to be released by district agents in times of cold epidemics and gripe. The advertising appropriation will be apportioned as follows:

63 per cent for oranges, 36 per cent for lemons and one per cent for grapefruit.

Advertising will also be carried in papers in the citrus belt of California with the object of increasing the membership. Such advertising, it is believed, will carry worth while information to non-members; it will assist members in their efforts to interest new members; and it will create a favorable attitude among bankers, business men and the general public.

During the past year, 99 extractors in Boston, Mass., used an average of 55 to 70 boxes of oranges and 13.51 boxes of lemons a day. On this basis, the 396 extractors in use in greater Boston used 54 cars of oranges and 10 cars of lemons during the season. A total of 1,386,899 glasses of orangeade and lemonade was sold for approximately \$173,820. The average total business for the 99 stores equipped with juice extractors was \$101,081 for the 52-week period.

THE PLACERVILLE Fruit Growers' Association of Placer county, California, closed its season with shipments exceeding 800 cars. The association has enjoyed an excellent and steady growth since it was founded, and it has built up a high reputation for its Tahoe brand of Bartlett pears. Credit for the success of the association is said to be due largely to the efforts of President J. A. Irving and Manager R. F. Roddan. A good board of directors has been of material assistance.

THE FLORIDA Green Fruit Law has been effectively preventing the shipment of green fruit from the state, according to C. C. Commander, general manager of the Florida Citrus Exchange.

However, the grapefruit output of the Isle of Pines and Porto Rico does not come under the operation of a similar law, and for this reason the Florida grower is placed in a disadvantageous position.

Mr. Commander recently issued a statement denouncing the condition as decidedly unfair to the interests of Florida citrus growers. He took the position that Congress should pass a law which would require outside shippers of citrus fruits to meet the same requirements that Florida growers are compelled to meet. Such a law would operate to the advantage of consumers as well as Florida producers. Mr. Commander has written to the Florida congressmen urging that they promote the passage of such a law by Congress.

"POSSIBILITIES and Limitations of Co-operative Marketing" is the title of Circular 150, just issued by the College of Agriculture, Columbia, Mo. The authors are F. L. Thomsen and H. C. Hensley.

The benefits which may be expected from co-operative marketing are given as follows: (1) Co-operative associations, when operated efficiently, obtain for their members the profits which usually go to private firms in the same line of business. (2) In many instances co-operative organizations have been able to effect additional savings by reducing the cost of marketing. (3) Co-operative marketing associations can in many ways favorably influence prices. (4) Co-operatives foster more efficient production methods. (5) Successful co-operation brings a number of non-financial bene-

its which lead to community progress along various lines.

The authors recognize that certain conditions are necessary for successful cooperative marketing. The three most important factors in their opinion are: (1) Intelligent and loyal interest and activity on the part of members, frequently strengthened by contracts, which make definite the obligations of the respective parties. (2) Organization on a sound basis which the experience of other successful co-operatives indicates will prove most practicable. (3) Efficient management.

Copies of Circular 150 can be obtained from the College of Agriculture, Columbia, Mo.

PLANS are being developed for the organization of a California Grape Shippers' Co-operative Association, which will begin operations next season. According to reports, the organization will include in its membership grape growers, grape dealers and individuals and companies engaged in the shipment of fresh grapes and grape products.

One of the principal objects of the organization will be to establish a definite relation between production and consumption and to carry out a definite program in regard to the development of markets for grapes and grape products.

This new plan will without doubt be watched with interest by many growers and co-operative leaders. In the past, similar attempts have been made to co-ordinate the interests of growers, dealers and manufacturers, but so far as the writer is aware, none of these efforts has succeeded for any great length of time. It seems a very difficult, if not impossible, matter to co-ordinate the activities of individuals and companies having more or less opposite interests.

DURING 1925, the 10,800 co-operative associations reporting to the United States Department of Agriculture conducted a volume of business amounting to \$2,400,000,000. In 1915, the 5424 associations reporting to the department handled business estimated at \$636,000,000. The largest gains in co-operative business were made in the North Central states, where the increase during the 10 years amounted to over one billion dollars. In 1915, California led in the amount of co-operative business conducted, and Iowa and Minnesota followed in second and third places, respectively. In 1925, Minnesota was first, California second and Illinois third.

The associations handling perishables in 1925 are credited with a volume of business estimated at \$280,000,000.

Minnesota Horticulturists Have Successful Convention

THE SIXTIETH annual convention of the Minnesota State Horticultural Society was held in the state capitol at St. Paul, on December 9-12, inclusive. The meeting was a distinct success from every standpoint. While the attendance was good at every session, some members felt that it would have been larger had the first cold spell not arrived at the same time as the convention, causing many members to remain at home. The convention was this year held a month earlier than usual.

A large and varied program was carried out. Leading authorities from Minnesota and other states gave talks on important subjects of the day. The sessions of one day were devoted to vegetable growing. In Minnesota the horticultural society is conducted with the interests in mind of both amateurs and commercial growers. Representatives of both groups were in attendance, the commercial growers predominating.

A number of important resolutions were passed. Perhaps the most important was one asking the state legislature to increase the appropriation for

fruit breeding work from the present amount of \$11,910 to \$20,000. The Latham raspberry, which was originated by the Department of Horticulture, has alone brought more wealth to the state than the entire cost of fruit breeding work from its inception, according to the resolutions committee.

The principal fruit crops in Minnesota are apples, plums and raspberries. The more hardy varieties of apples are grown, consisting of Wealthy, Snow, McIntosh, Northwestern Greening and a few others. The horticultural society has offered a prize of \$1000 for many years for a new variety better adapted to Minnesota conditions than the varieties in existence. The requirements are described definitely in comparison with

existing varieties. To date, no one has won the prize.

Plum growing is also important in Minnesota, and it promises to increase because of the new varieties developed by the experiment station. St. Paul and Minnesota use 750 cars of California plums a year, and it is believed that these cities offer a potential market for home grown plums with the employment of proper methods.

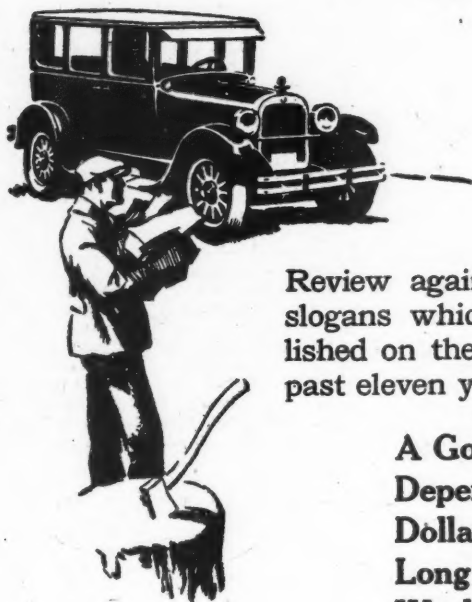
Raspberry growing has been an important industry in Minnesota for many years, and the new Latham variety has stimulated the industry remarkably. This variety is proving very hardy and productive and is fairly resistant to disease.

A feature of the convention was the fruit and vegetable exhibit, which was displayed under the dome of the capitol and in the hallways. The quality, color and size of the fruit were exceptionally good. The experiment station exhibited a large number of new fruit varieties which offer promise.

The success of the convention was due in large measure to the work of Secretary-Treasurer R. S. Mackintosh, who deserves due credit for the same.

The officers for the coming year will consist of the following: President, R. A. Wright, Excelsior; vice-president, F. F. Farrar, White Bear; secretary emeritus, A. W. Latham, Pasadena, Calif.; and secretary-treasurer, R. S. Mackintosh, St. Paul. The executive board will consist of F. C. Schletty, Olaf J. Olson, Mrs. E. W. Gould, D. C. Webster, Charles Haralson, Robert Wedge and the president and secretary-treasurer.

A Story in Nutshells



Review again a few of those well known slogans which Dodge Brothers have published on the Nation's billboards during the past eleven years—

**A Good Name
Dependable
Dollar for Dollar
Long Life
World-Wide Good Will
Better Than Ever**

To build a product of which these things can truthfully be said, is a record of which any great organization might well be proud.

And it explains the implicit faith that millions everywhere repose in the integrity of Dodge Brothers and in the goodness of the motor cars they build.

Sedan \$895 — Special Sedan \$945
DeLuxe Sedan \$1075—f. o. b. Detroit

DODGE BROTHERS, INC. DETROIT
DODGE BROTHERS (CANADA) LIMITED
TORONTO, ONTARIO

DODGE BROTHERS MOTOR CARS



The Everglades

Miami, Florida

NOW OPEN

Miami's Beautiful New Apartment Hotel
on Biscayne Boulevard

Overlooking City Park and Biscayne Bay

A 17-Story Fireproof Structure affording hotel accommodations of the highest character; also housekeeping apartments of 1, 3, and 4 rooms, completely equipped with daily maid service.

A FRED F. FRENCH PROPERTY

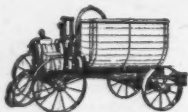
WILLIAM M. GALE, Manager

Illustrated Booklet Upon Request



BEAN
"Super Giant"

A real giant for work. Capacity up to 23 gallons a minute at 300-400 pounds pressure. For large acreages and where very rapid high pressure work is required.



BEAN
"Simplicity"

Capacity of 5½ gallons per minute at 250 pounds pressure sufficient to do good work with a spray gun or supply 2 rods. Furnished with or without truck.



BEAN
"All Purpose"

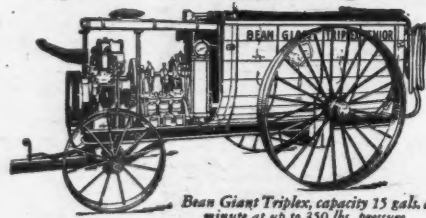
Designed for potatoes and other truck crops, but quickly converted into an orchard sprayer. Adjustable to any rows.



BEAN
Power Duster

Mixes its own dust, thus cutting the cost of material in half. Simple, efficient, economical. For truck crops and orchard work.

Better Spraying for bigger profit



Bean Giant Triplex, capacity 15 gals. a minute at up to 350 lbs. pressure.

For big crops of clean fancy fruit, the kind that always brings the top price and enjoys the best markets, keep your trees clean of the insects that cut down production and destroy the quality.

A BEAN is a real money-maker for any grower. Patented Pressure Regulator—safest and best; Trouble-less Ball Valves; Porcelain-lined Cylinders that wear 10 times as long as ordinary cylinders; a Pump without stuffing boxes or stuffing box troubles; and many other patented and protected features found on no other sprayers in the present efficient BEAN design.

Types and sizes for every spraying requirement. Send for catalog.

BEAN
ORCHARD AND CROP
SPRAYERS

Send this coupon for new catalog and Bean Book of Better Spraying

BEAN SPRAY PUMP CO.

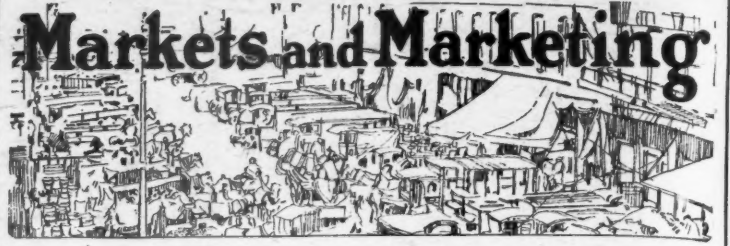
15 Hosmer St., Lansing, Mich.
104 W. Julian St., San Jose, Cal.

Please send me your 1927 Sprayer Catalog and Book of Better Spraying.

Name _____

Address _____

59-5197



Markets and Marketing

A GENERAL freeze in the Pacific Northwest during late September did considerable damage to the apple crop. In the Wenatchee and Yakima districts about 50 per cent of the apples were unpicked at the time, notwithstanding the heroic efforts made by growers to get the entire crop picked when the freeze became imminent.

A serious loss from dropping of fruit resulted, amounting, according to some authorities, to 10,000 carloads for the entire Northwest. Even such fruit as did not drop has been ripening prematurely. Romes and Staymans suffered worst, because the low prices prevailing for these varieties caused many growers to devote their time to picking Winesaps and other higher priced varieties instead.

The freeze probably did more damage in Idaho than in Oregon and Washington. The state is expected to ship less than 4000 cars compared with 7484 cars shipped last year. The Jonathan crop was fairly well harvested when the freeze occurred, but there was a heavy loss of Romes and other varieties from dropping.

A good crop of McIntosh apples was in prospect in the Bitter Root Valley of Montana, but the temperature fell to a lower point there than in any other producing section in the Northwest. It is estimated that 60 per cent of the fruit was destroyed by the freeze. The loss is felt all the more keenly because of the prices of \$2.50 to \$2.75 per box which have been prevailing on the New York market for apples of this variety.

The Spitznburgs of the Hood River district have been showing exceptionally good color. A continued rain about the middle of October delayed picking and caused increased loss from

dropping, which is estimated to be at least one-twelfth of the total crop.

The total loss in northwestern fruit sections is estimated at about 8000 cars, distributed as follows: Wenatchee, 3700 cars; Yakima, 3000 cars; Hood River, 350 cars; Walla Walla, 300 cars; and Spokane, 800 cars.

The shipments from Washington are now estimated at less than 30,000 cars for the season compared with a movement of 35,046 cars last season. On October 30, Washington, Oregon and Idaho had shipped 17,870, 3230 and 2750 cars, respectively, as compared with 17,290, 2630 and 3860 cars to the same date a year ago.

"THE TARIFF receipts are about \$450,000,000, about one-third of which are on agricultural products, mainly on sugar and wool. While it appears on the face of it that the farmers are getting a good thing out of certain tariff protection, the total amount received in increased income is estimated to be \$125,000,000 because of the tariff, which, however, goes to a relatively small number of farmers. The whole group of farmers pays in increased prices of goods, due to tariff on agricultural products, around \$95,000,000, leaving as the net gain to agriculture about \$30,000,000 or one dollar per capita for all farm people.

"On steel alone the farmers pay a tariff bill, including the additional charges accumulated along the way between producer and consumer, of probably over \$5 per capita, or a total of \$158,000,000 on steel alone. It would not be out of reason to say that the tariff costs the farmer, net, in the neighborhood of \$300,000,000, or \$10 for every man, woman, and child living on American farms.....

November Crop Estimate for Fruits

THE FOLLOWING estimates of production for apples, pears and grapes as of November 1 were issued by the United States Bureau of Agricultural Economics on November 10:

APPLES.					Commercial Crop				
Principal producing states.	Production in thousands of bushels.				Production in thousands of barrels.				Five-year average, 1922-1925.
	Forecast Nov. 1, 1926.	Production, 1925.	Five-year average, 1921-1925.		Forecast Nov. 1, 1926.	Production, 1925.	Five-year average, 1922-1925.		
Maine	2,156	3,305	2,871		427	645	535		
New York	40,375	32,500	25,800		7,032	6,250	4,698		
Pennsylvania ..	16,215	6,970	7,767		1,796	1,011	899		
Ohio	11,900	6,300	7,147		1,006	678	675		
Illinois	8,875	7,000	6,600		1,375	1,164	1,102		
Michigan	9,045	9,000	9,265		1,489	1,700	1,545		
Missouri	5,015	4,100	5,070		688	646	673		
Kansas	1,428	1,600	1,884		310	285	321		
Delaware	2,376	1,340	1,054		660	380	285		
Maryland	3,484	1,870	1,641		586	324	280		
Virginia	19,902	7,844	8,375		3,296	1,440	1,478		
West Virginia ..	10,875	4,185	5,110		1,688	749	792		
North Carolina ..	5,986	3,192	3,767		299	160	166		
Arkansas	3,450	4,070	2,699		733	691	521		
Idaho	4,200	6,029	4,441		1,050	1,700	1,282		
Colorado	3,444	3,200	3,337		969	860	863		
New Mexico	1,147	1,021	901		287	260	207		
Utah	852	1,250	1,018		183	290	213		
Washington	34,030	29,550	27,577		8,500	8,570	8,017		
Oregon	8,036	5,400	6,572		1,661	1,296	1,505		
California	10,217	6,016	7,954		2,043	1,097	1,488		
U. S. total.....	246,262	171,706	169,500		39,949	33,044	30,109		

PEARS (Total Crop).					GRAPES (Total Crop).				
Principal producing states.	Production in thousands of bushels.				Principal producing states.	Production in tons.			
	Forecast Nov. 1, 1926.	Production, 1925.	Five-year average, 1921-1925.			Forecast Nov. 1, 1926.	Production, 1925.	Four-year average, 1922-1925.	
New York	2,088	3,045	2,199		New York	166,700	51,840	74,710	
New Jersey	645	512	478		New Jersey	2,820	2,200	2,259	
Indiana	328	209	219		Penn.	25,110	11,180	18,108	
Illinois	774	610	385		Ohio	29,100	13,750	19,001	
Michigan	889	450	859		Indiana	4,606	2,450	3,511	
Missouri	473	342	329		Illinois	6,582	3,360	5,031	
Kansas	184	165	162		Michigan ..	66,990	22,100	45,212	
Delaware	388	180	209		Iowa	6,052	2,335	4,983	
Texas	580	386	401		Missouri ..	12,880	5,760	6,238	
Colorado	564	510	496		Kansas	3,330	2,216	2,806	
Utah	80	30	69		N. Carolina ..	6,840	4,915	5,816	
Wash.	2,880	2,300	2,040		Arkansas ..	14,000	4,400	2,255	
Oregon	2,100	1,500	1,308		Wash.	2,775	3,100	2,181	
California ..	9,000	6,667	5,514		California ..	2,050,540	1,817,000	1,795,750	
U. S. total ..	25,269	19,820	17,707		U. S. total ..	2,966,035	1,967,160	2,008,617	

Thus the farmer very properly asks what the facts are about his much praised home market. So far as he can see, it works well with respect to potatoes, tomatoes, and fresh vegetables, but fails to work respecting corn, hogs, cattle, wheat, rice, and cotton. For the most part the prices of these basic commodities are made on a world market and reflected back to American farmers.

"This is merely another way of saying that one of the greatest price making influences known is the tariff, and the farmer receives little benefit in the way of increased price, but pays bills made much larger by the tariff on manufactured goods."—B. H. Hibbard, Head of Department of Agricultural Economics, University of Wisconsin.

AT THE last session of the California legislature a so-called commission merchants' bill was defeated as a result of veto by the governor. This bill provided for regulation of the activities of produce dealers.

A new bill covering the matter will probably be introduced in the legislature again during the coming winter. The new bill, which is said to be under process of preparation, will include in its scope not only dealers in perishable fruits but also dealers in subtropical fruits, vegetables, dairy products, poultry, nuts and honey. Leaders representing all of these interests are developing the new bill, and it is hoped that a fair and adequate measure will be drafted.

NEW YORK has a law which requires a commission merchant to give bond. Under this law more than \$6000 were collected and returned to farmers during the year closing July 1. In addition, nearly \$5000 were collected from sureties on the bonds filed by the merchants. The amounts paid out of the bonds resulted mainly from business failures and in a few cases from failure or refusal of the dealers to make proper returns. The work of licensing the merchants and the list of dealers published each year is of value to people both inside and outside of New York, according to H. Deane Phillips, director of the Bureau of Markets. The bond is a protection to shippers who deal with license merchants. The basic feature of the law is that it requires all dealers who receive and sell produce on a commission basis to secure a license from the state commissioner. In addition, a bond for \$3000 must be filed. This bond is used for the protection of consignors in case the dealer fails in business or fails or refuses to make proper returns for products shipped to him.

Licenses run for one year and are issued on July 1. In applying for a license, a dealer must submit a complete financial statement and satisfy the commissioner as to his financial standing, his general business standing and his record for fair dealing in the past. The commissioner has wide powers as to the revoking of licenses, the investigation of complaints from shippers, and the adjustment of disputes. The law requires merchants to keep a record of the details of each transaction and to remit proceeds to shippers within 48 hours unless otherwise agreed.

THE HAMBURG dried fruit market, which reflects conditions in the German dried fruit market as a whole, has been showing an unusual condition this fall. During the summer, the turnover of dried fruits was large, but as the fall period neared the sales fell off rapidly. The depression was not caused by undue speculation but rather by fear of a marked decline in prices, due to reports of large fruit crops in the United States and other important fruit producing countries. Apparently, an anticipation of declining prices of fruits and fruit products became so general among European dealers and importers that the decided depression resulted.

A wet, cool season prevailed in Germany this year. As a result, large

While spraying now, for scale control be planning ahead—



Read what these Orchardists have to say

Wish to say that I used Dritomic Sulphur last year with such satisfaction, that I used it exclusively this year commencing at the Calyx spray, on Williams, Early Ripe, Fourth of July, Rome Beauty and Stayman Apples. My results are so satisfactory that I feel safe in saying that it is an ideal spray for all fungus troubles for which you recommend it.

F. B. H. Rash,
Camden, Delaware

...have heard no comments other than praise for the efficiency, economy and convenience of this product.

Wm. E. Williams
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DRTOMIC SULPHUR

has definitely established itself as the fruit grower's most powerful protector against fungous diseases on apples, peaches, and other fruit. Used from calyx spray time, on, it gives effective control without injury of fruit or foliage. You can use it with "Orchard Brand" Arsenate of Lead—a combination which gives insect and fungus control in which you can put the utmost confidence.

From the fruit growing centers word comes in that "Dritomic" Sulphur has everywhere proved to be the most satisfying sulphur spray ever used. Plan, now, to use it in your orchards next year.

Literature and prices on request—
either from your dealer or from

GENERAL CHEMICAL COMPANY

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G C 1-28

quantities of green vegetables were produced. This condition caused a marked decline in sales of dried fruit. Some importers state that the slump in demand for American dried fruits was partly due to late receipt of quotations for the 1926 crop and to opening prices that were too high.

VIRGINIA harvested an apple crop of about 3,325,000 barrels this year, or almost 2,000,000 barrels more than last year. The state has the third largest crop in the Union this year, being exceeded only by New York and Washington. The Virginia crop is about half that of New York and a little more than one-third that of Washington.

NORTHEASTERN Georgia harvested about 500 cars of apples this year, the largest crop ever produced by the district. Last year the crop of apples in this section was severely damaged by drought, but this year conditions have been favorable and a large crop is the result. The apples are of good quality and should sell to good advantage.

Most of the growers of the section are selling their crop through the local co-operative association, which

is insisting upon careful grading and packing of the fruit.

The northeast Georgia fruit section promises to increase its production, since there are many young orchards which have not yet come into bearing. In all probability additional orchards will be planted.—J. H. Reed.

A NEW federal inspection office for perishables has been opened at Charlotte, N. C. The office will be made permanent if the demands of that territory justify the same. Inspections will be handled from this new office at Raleigh, Durham, Greensboro, Salisbury, Winston-Salem, Asheville, and High Point, in North Carolina; Spartansburg, Greenville, Anderson, Laurens, Union, Columbia, Darlington, and Florence, in South Carolina; Morristown, Elizabethton, and Johnson City, Tennessee; and Danville and Lynchburg, Virginia.

Regular fees will be charged for inspections at inspector's headquarters. At other points travelling expenses from headquarters will be charged in addition.

DURING the 1925-26 season, 14,647,810 boxes of citrus fruit were shipped out of Florida. These figures include fruits taken by canning fac-

tories and hauled to Georgia and Alabama by trucks.

The railroads hauled 13,729,704 boxes, the water lines 181,583 boxes, and automobile trucks 300,000 boxes. Canning factories handled 436,523 boxes.

The production for the season was lower than during the season of 1924-25, when about 19,200,000 boxes were shipped. Some of the decrease was due to real estate activities, and some of it was due to larger local consumption in Florida, due to the great numbers of tourists in the state at that time.

Cold Storage Holdings of Apples

THE FOLLOWING cold storage holdings of apples on October 1 were reported by the Bureau of Agricultural Economics:

478,000 barrels compared with 885,000 barrels on October 1, 1925, and a five-year average of 811,000 barrels.

1,767,000 boxes compared with 1,091,000 boxes on October 1, 1925, and a five-year average of 809,000 boxes.

339,000 bushel baskets compared with 519,000 bushel baskets on October 1, 1925.

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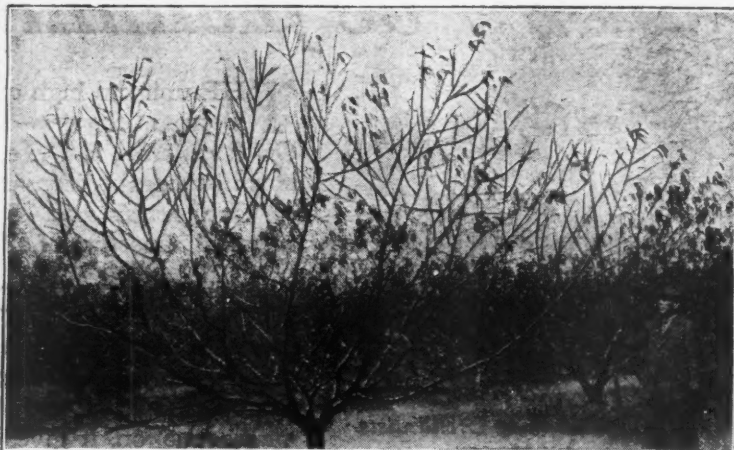
(Continued from page 3)

pense, cuts down the yield so much that it does not pay. Besides, the trees soon begin to decay and the orchard passes out of existence. I confess that I am disappointed that so much annual growth seems to be necessary, entailing so much expense for annual pruning.

The Long System of Pruning Applied to Older Trees

Although the long system of prun-

When the trees are five or six years old, cut the main limbs back to the desired height, 10 to 12 feet. Cut to the largest side limb going in the desired direction—usually outward. Do not cut back the side limbs that are left. This constitutes the long system applied to older trees. The large secondary limbs that are running out in a more horizontal position should be headed back in proportion to the more upright limbs, or headed



Five-year-old (sixth summer) Hale peach tree before and after pruning. The branches were thinned out rather severely and were headed back moderately. The tree has slightly too many main branches

ing is so fine for the younger orchard, it would be ridiculous and impossible to attempt to continue it throughout the life of the trees in our close-planted orchards.

There is a very strong tendency in the peach tree for all the growth to go to the top. Even though the side limbs in the top are pruned off severely with the resulting dwarfing tendency, still the growth goes on up and the main limbs get higher and longer, while the lower part of the tree gets weaker.

back even more if the trees are crowding. Follow out all the large limbs and cut out larger limbs instead of cutting back wherever it is necessary to let in more light throughout the tree. I am here trying to emphasize the cutting of larger limbs to let in the light, rather than taking out all the small growth.

Keep the Centers Open

To keep the centers open does not mean to cut out all the side limbs running toward the center. The num-



A 12-year-old Elberta peach tree with a spread of 25 feet after pruning. Before pruning it had a spread of 30 feet

ber of scaffold limbs having been determined, and these having been cut back to the desired height, pruning in future years is quite simple. It should be the object to maintain or increase the degree of openness, and this is accomplished by removing or restricting the side limbs that have become too large. The top side limbs especially will produce strong upright shoots. Remove the strongest of these from year to year. Their removal will keep the tree from becoming taller, let in more light, and strengthen the growths lower down.

If the main limbs are very spreading and you are getting a lot of water sprouts four to six to eight feet long, let the centers fill up a little more. If instead the lower twigs are weak and the new growths come out and die before the growing season is over, or during the winter, then open up the centers and tops more.

Do Your Pruning Regardless of the Immediate Crop

If anything, the pruning should be the heaviest in the crop years, so as to get away from some of the thinning expense. Heavy pruning will also contribute toward the desired amount of growth for the next year even though there is a full crop. It is difficult to get enough new growth when there is a full crop.

We have usually pruned and are now pruning just as if we expected a good crop. Whenever we have deviated from this policy, we have usually missed it. This year on a part of a five-year block of Hales we had the men prune 12 rows much lighter after the freeze, because the fruit was all in the upper part of the trees. These trees were also lightly thinned, while the trees cut heavier were not. As a result, the 12 rows were overloaded. The trees broke quite badly, although they were well propped. We got a few more bushels, but the peaches were not so good. The trees look badly and it may take them a year or two to get over it. On the other hand, the rest of the orchard, which was pruned much heavier, had a fair crop of better peaches, and the trees are in fine condition for next year.

Restricting Older Trees According to the Soil and to Their Distance Apart

All our orchards are planted too close for the most economical production. We have outside trees in a 12-year-old orchard with a 30-foot spread this fall. These large trees were wired (not propped) and produced a crop of from eight to 10 bushels. It simply shows that Elberta planted on good land and well taken care of could utilize a distance of 30 feet each way. If the trees have plenty of room to spread, they do not show such a tendency to grow high. Consequently, they require less pruning to keep them down. I believe, however, that our orchards planted even as close as 20 by 20, will, if properly restricted and pruned, produce as many peaches per acre as those planted farther apart. However, the expense of keeping them in proper bounds will be considerably greater, and the production costs will be somewhat increased accordingly.

The trees should be restricted enough to allow an easy passage between the rows for spraying, cultivating and harvesting. The trees will make good use of the extra light. Light is as important between the trees as in the centers of the trees. In my opinion, trees restricted in this way will bear as many good peaches as they would if allowed to grow together, the limbs touching from row to row. Trees on thin land must be restricted more than those on strong land. More tree than is necessary to hold all the peaches the soil is capable of producing and maturing is a detriment. It takes plant food and moisture to maintain such surplus growth.

Detailed Pruning

It has been the practice of a few growers, in the spring after the growth starts, to clip off all the little dead and weak twigs. We never have done this to any extent because I

could never convince myself that it would pay. Other growers have gone further than this; they have not only clipped off the dead and weak twigs, but also 25 or 30 per cent of the fruiting twigs all over the tops. This is done with the idea of throwing the growth into the twigs that are left, insuring a better set on these fewer twigs, lessening the thinning job, and encouraging a strong growth later on. My small experiment with this type of pruning seemed to show that it was slightly harmful and quite expensive. If it were done before any growth had started, it would probably not be harmful, but I doubt if even then it would pay. In my experiment, the first clipping was done about a week before the bloom, the second during bloom. The twigs clipped last did not show as good vigor as those clipped earlier, and those clipped first did not show quite so good a growth as those not clipped at all.

What appeals to me as a better plan is one which we have practiced to some extent. On very vigorous trees soon after the set, when it is evident that the trees have many times too many peaches, we take pole

pruners and cut out some of the most upright limbs in the tops. In three or four minutes we cut off 2000 or 3000 peaches per tree. This eliminates a lot of peaches at practically no expense, cuts down the thinning cost, lowers the tree slightly, and lets in a little more light. If the plan is harmful, the harm is so slight as to be unnoticeable.

Conclusions

In this discussion, I have advocated the type of pruning that we are trying to carry out in our own orchards. I recognize the fact that we shall probably have to take a much lower price for our peaches in the future than we have been getting in the past eight or 10 years. There will probably be years when the average grower will get less than the cost of production for his peaches. Under such conditions the grower who would survive must adopt methods which will bring the best quality and the largest crop for the least money expended. Increasing competition in peach growing, as in every other line of business, always calls for increased quality production at lower cost.

Liability for Injury to Fruit Trees

(Continued from page 4)

grass from under the trees and permitted it to lie upon the ground, so that the fire spread quickly with damaging results. It also was shown that the fire originated on the company's right of way, and spread to the adjoining land, particularly for the reason that some time before the fire the railroad company mowed the grass and weeds upon its right of way and permitted them to lie upon the ground, whereby the fire, after once starting, spread rapidly to the cut and dried grass upon the orchard property.

In this case the court held the railroad company liable for damages. The chief point of discussion which arose was the actual and true value of the trees. One of the witnesses for the railroad company testified very clearly, and he thoroughly understood the subject, that he estimated the damage at \$250 a tree. Two neighbors of the owner of the orchard testified that the damages amounted to approximately \$2500. The jury fixed the damages at \$2000, and this was the amount received by the owner of the damaged orchard.

In another case, which involved similar litigation, the court in effect said that a railroad company has the right to take private property for public uses but in doing so it must pay the actual value of the property to the original owner. Furthermore, the railroad company has no legal right to take or destroy private property by negligence.

Liability for Unintentional Damage

Ordinarily, where a person negligently destroys or injures the property of another, he is required to compensate the person injured for the value of the property destroyed. Moreover, an orchard cannot be grown in a day. It requires patience and an outlay of money and labor to produce an orchard. Therefore, a person who has invested his money cannot be deprived of his property rights in the orchard simply because a wrongdoer claims that the injury was accomplished unintentionally or that the public is benefited.

The records of a recent litigation disclose that an orchard was destroyed by fire negligently produced by a nearby steam engine. The land on which the orchard grew was situated so that it was valuable as a subdivision upon which to build homes. The owner of the engine which destroyed the orchard attempted to relieve himself of liability by proving that the land was more valuable without the trees than it was with them. In this case the court said that the value of the entire premises before and after the injury is a circumstance to be considered by the jury with other evidence, and if the property is

not decreased in value the owner is not entitled to damages.

Effect of Damage on Values is Chief Factor

This rule has been adopted in various states, as a result of which the damages capable of being recovered by the owner of an orchard completely or partially destroyed are based upon the difference in the value of the land before and after the time of the injury.

For example, several cattle broke through a fence and ate young trees. In the litigation that followed, the court said that the owner of the cattle was liable for the damage in the amount measured by the actual difference in the value of the property before and after the time the cattle broke through the fence, in consideration of all damage effected.

In another case, it was held that the owner of young trees is not entirely confined to a particular rule on which to estimate damages and he may prove, by reliable witnesses, the estimated damage inflicted on the trees and also on the land itself.

Liability for Intentional Damage

In another case where the injury was done to the standing timber, it was held that the amount of damages was entirely dependent upon the value of the trees at the time, unless the wrongdoer committed the injury purposely. It was shown to the satisfaction of the court that the wrongdoer had knowingly cut the timber and shipped it to a nearby town, where the timber was converted into household furniture. The court held that the owner of the land, from which the trees were wrongfully cut, was entitled to the total value of the furniture, because the wrongdoer had committed the act in bad faith, as a result of which the owner might recover the enhanced value of the trees as a penalty, and that the trespasser could obtain no credit for the labor expenses.

However, in another case wherein it was shown that an individual cut trees as a result of a mistake and not intentionally, the court held that he was liable for the actual value of the trees and that the owner of the property was not legally entitled to recover an amount equal to the value of the merchandise into which the trees had been manufactured.

This is a very important point for the owner of orchard trees to understand, as there have been numerous occasions where trees have been wrongfully cut for the purpose of obtaining the wood to manufacture valuable articles of merchandise. In cases of this kind, the owner of the trees is privileged to sue the wrongdoer for recovery of the amount of the actual value of the tree, or if he

desires, he may recover the value of the merchandise into which the cut trees are manufactured. Furthermore, the wrongdoer is not permitted to deduct the expenses he has incurred.

In deciding a case, the court in effect said that a good rule by which to measure the damages, recoverable by an owner of cut fruit trees, may be based on the reduced value of the property or the market value of the articles into which they have been manufactured, and in either event the owner of the property is entitled to recover the damages he deserves.

Liability for Minor Damages

On the other hand, it has been held that where the injury is relatively small, as where a fence is broken down and a single tree is damaged, it is not proper for the owner of the damaged property to attempt to prove the amount of the damage by relying on real estate experts to give their opinion of the property value before and after the injury, because the most simple method of arriving at a reasonable valuation of the inflicted damage under such circumstances is to have the expert testify directly his opinion of the damage accomplished.

Another important thing to know is that where it can be satisfactorily proved that damage or injury to trees is caused as the result of someone's negligence, the owner is legally en-

titled to recover the amount of the damaged property, whether the damage was accomplished purposely or accidentally.

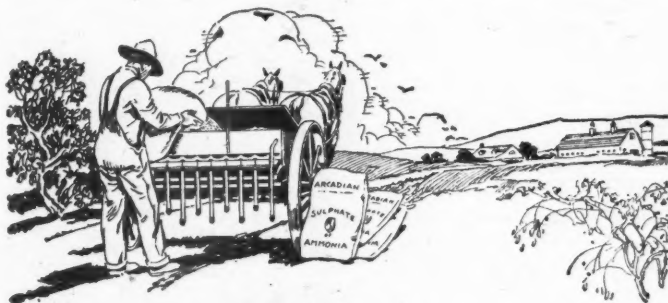
For instance, in a recent case it was shown that an orchard was burned by the negligence of the owner of adjoining property. The court held the negligent person liable and said that the orchard undoubtedly made the farm more valuable because it furnished shade and served as a windbreak as well as being ornamental and adding to the value of the farm, whereby the damages recoverable were more than the actual value of the trees.

So, therefore, the general attitude of the courts has been that an owner of property has a legal right to enjoy it according to his own taste and wishes, and the arrangement of buildings, fruit trees and the like may be very important to him, so that injury of the trees may inflict considerable damage to his convenience and comfort, for which he is entitled to be substantially compensated, as a result of wrongful, unauthorized or negligent injury of the trees by another person.

Mrs. Reilly—What makes these sardines so high?

Grocer—They're imported, mum.

Mrs. Reilly—I'll take the domestic ones, then as had the brains to swim across to this country.—Team Work.



13 more growers

"swap experiences"

HERE are a few reports of actual experiences with Arcadian Sulphate. Study them!

Crop	Grower	Arcadian Sulphate Application Per Acre	Increased Yield Per Acre
Rhubarb	J. F. Hurl, Mariana, Cal.	200 lbs.	100 boxes
Carrots	W. P. Goldsworthy, Chelan, Wash.	100 lbs.	740 lbs.
Onions	R. C. Robinson, White Bluffs, Wash.	300 lbs.	251 cwt.
Potatoes	A. L. Hinckley, Folsom, Cal.	400 lbs.	50 sacks
Alfalfa	H. Lawson, Delhi, Cal.	240 lbs.	nearly 2 tons
Figs (Black)	S. B. McMillan, Indio, Cal.	200 lbs.	236 flats at first picking
Apples (Gravenstein)	Dutcher Bros., Corvallis, Ore.	300 lbs.	420 boxes
Apricots	G. Seibert, Salina, Cal.	150 lbs.	2,280 lbs.
Rice	Biggs Rice Field Station, Biggs, Cal.	100 lbs.	707 lbs. (6 yr. aver.)
Peaches	E. Brooks, Ben Lomond, Cal.	270 lbs.	178 boxes
Plums	A. L. Hinckley, Folsom, Cal.	300 lbs.	30 crates
Pears	G. W. Barber, Finley, Cal.	225 lbs.	1,422 lbs.
Cotton	S. E. Martin, Indio, Cal.	200 lbs.	929 lbs. lint

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Please send me sample package of Arcadian Sulphate of Ammonia.

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The Orchard Home Department

The Right Light

IT'S agreeable to see people and things looking their best. This depends on the light in which they are seen. We often say, with reference to both material things and moral questions, "Let's look at this in the right light."

Houses are generally built around their owners, that is, they express the owners' ideas of comfort and beauty. This gives a very desirable individuality, but such ideas can be carried too far in a personal direction.

I've seen a big, handsome house furnished throughout to set off the type of its mistress, a pretty pastel blonde.

The first glance on entering was soothed by a considered harmony in tender pinks and blues, gentle greens, subdued yellows, softened silvery tones. But this became monotonous. The conviction grew that mints of money had been wasted with pure insipidity as the result.

The very walls seemed to simper. "Don't we make a becoming background for milady's blonde head?" I'd an impulse to answer out loud, "Yes, but you've both forgotten there are other people in the world."

The insistent self-centered note spoiled all sense of spontaneity. The house, instead of being a home, became a show case.

Once it was considered good form to grope in semi-darkness in the old fashioned parlor. Now we let in floods of light all over the house. This necessitates greater attention to the windows.

Often the treatment of windows is not given the same degree of consideration as the other furnishings. Why, for example, should cold north windows be left to throw a pitiless white glare over the room and everyone in it? There's no coziness or comfort in that.

Windows should not only be decorative but should impart beauty to the things their light reveals. A blueish hue, a greenish cast, can depress and "uglify" every person subjected to it.

When the heart is gay, we say we are looking at life through rose colored glasses. It's a delightful experience. You don't want pink window panes; rose colored shades may not harmonize; sunny yellow curtains might blast the effect of a lovely room; but next time you buy window draperies, keep in mind the thought of securing an agreeable, becoming light.

Standing Room Only

THE NAME "Sitting room" rings with an echo of irony in the ears of the woman who sweeps, dusts and generally "picks it up" after its daily disreputable fall into confusion. Many a housewife with tired, aching feet, feels that "Standing room only" might well be written up over almost every door in the house.

The bedroom alone suggests the relief that comes to weary feet raised to a restful level. Even there, if strained arches have resulted from constant standing, the throb and ache may continue, postponing needed sleep.

How can she remedy this? There are so many things that must be done, and if she doesn't do them herself, they are not done at all.

A wise step (no wonder she hates the very word, step), would take her to a chiroprapist for advice. Without professional aid, she may be able to help herself considerably.

Women think they are economizing when they take into household use the modish footwear that has grown a little shabby for social functions. This is often fatal to the feet.

High spike heels and paper-thin soles have no place around the kitchen stove, in the hen house or be-

tween the rows where vegetables are gathered. Many foot sufferers have found relief by wearing one of the several makes of arch-fitting shoes with medium heels and fairly substantial soles. When the foot is too small for the weight it must carry, a shoe that supports the ankle helps to banish foot fatigue.

But is there any such thing as mere foot fatigue? When your feet are tired, you are tired all over, not only physically but nervously. The woman who exclaims, "My feet are simply killing me!" is not the mother to bring patient understanding to a little child's joys or woes or naughtiness. She's not the wife, to meet a weary man with a smile at the close of day. She feels "tired clear through" and frequently she feels "mad clear through" as well.

The most comfortable shoe she can buy, regardless of price, is the cheapest in which to do her housework.

How Not to Make Heroes

THE AMERICAN poet, beloved by children and grown-ups alike, who wrote "Seen' Things at Night," kept throughout life the heart of a child. So he understood children and won them by his sympathy.

I'm sure he wouldn't have ridiculed any fantastic terror in a small child. Today the best authorities assure us that to ridicule a child's fears or to compel him to do what terrifies him, simply makes the fear strike in deeper and perhaps serve as a lifelong handicap.

Some parents persist in this foolish and very cruel method. They might at least try to remember when they themselves felt as small and helpless, and the world seemed as strange and alarming as it does to a young child today. Then they would realize that such terrors vanish only when gently dealt with and carefully explained away. The child's pride may be summoned to his aid but he should not be ridiculed or driven to do what he fears.

Musings of Mollie

HAVE you ever been kept awake by a concert of neighboring cats or by that most dreary howl of a dog baying the moon? Justifiable burglary was the judge's decision in a suit brought against two Los Angeles youths. They stole a saxophone from the room of a fellow boarder who performed nightly when they wanted to sleep. Other boarders joined in a plea for clemency. All in favor say "Aye!"

WE CAN'T get the new woman back into the old chimney corner, so we'd best let the ladies enjoy themselves indoors and out without too much criticism. We are warned not to deplore the frivolity of the tennis playing mother or the golfing grandmother. Let us wink at teas and bridge parties.

If we drive the women to choose between having a family and having some diversion, the family may go further into the discard. Besides, some child specialists aver that many more children are spoiled by too much mothering than by too little. The efficient modern woman can reconcile adequate care of the family with some outside activity.

Americans See America

SPEAKING of seeing America first, it has been estimated by the American Automobile Association that 9,000,000 cars carried 36,000,000 people (or nearly one-third of our population) on vacations in the United States last summer. That doesn't look exactly as if we were neglecting our native land for European travel.

By Mary Lee Adams

Shopping for Christmas

DEAR MOTHER, with the anxious eyes and slender purse, once more we wish you a very Merry Christmas. A wish for you includes the whole orchard home of which you are the presiding genius, for well we know there will be no happiness in your heart unless it is shared by every member of your household.

Never do our means seem so cramped as now when we long to shower family and friends with gifts. Never is there greater need of self-restraint. Thoughts of how the heart of your good man will sink if Christmas bills wreck his chance of a Happy New Year will influence you to count pennies carefully.

Bewildering Displays

About this time of year our eyes begin almost to pop from our heads when we enter a store. They bulge brightly at sight of anything new and pretty. Often, alas, they withdraw modestly at sight of the price tag.

Some of us live near large cities that confuse our choice by the variety and immensity of the Christmas display. Some of us are forced to do our shopping through mail order catalogs. Most of us can reach a fair-sized town. If there be one such that does not boast, in addition to a well equipped beauty parlor, an admirable 5-10-25 cent store, I have not observed it between our eastern and western shores.

Practical Gifts

The medium-sized town (including the 10-cent store) offers some practical suggestions for gifts, quite a few of which can be made at home. Bedspreads made of widths of colored voile joined together by faggotting or strips of narrow lace, make a wonderful show for the time and money spent on them. They should be long enough to serve as a bolster throw, and may be varied in elaboration from those all besprinkled with embroidery and ribbon, to those almost equally pretty with a central floral design either embroidered or appliqued.

They depend for their peculiarly dainty charm upon the softness of the materials and the loveliness of color. If no shade can be found just right for a certain room, it's easy to tint the voile at home. Of course, these spreads must be laid over pure white or lined with a plain matching material.

Aids to Neatness

No untidy room can be attractive. The neatly kept bedroom has a waste-paper basket or, to put it the other way about, a waste basket keeps the room neat.

There are dreams of richly hued baskets this year in Italian weaves, but they're not particularly cheap. Much less expensive (at 25 cents to be exact) are the Japanese waste baskets of thin split withes dyed in many clear colors, and so designed as to fold into a circular mat almost as convenient to mail as a Christmas card.

They stand solidly enough on the floor when opened up and look delightfully gay. The decorative designs upon them are as artistic as those clever little Japs manage to produce, even on the simplest articles. They are distinctly ornamental.

Hooked Rugs Highly Prized

If you're fond of fancy work, you may already be busy with hooked rugs. A friend showed me four very lovely ones she had made of various shapes and sizes. Subdued tones are considered by experts to be the most authentic.

A rug like this should be reserved for the friend you think worthy of such an expression of affection. If it's perfectly successful when finished, you're going to have an awful struggle

with the tempter before resisting the urge to keep it for yourself.

A New Kind of Oil Cloth

If you'd like to make yourself a present, why not cheer up the bathroom with oil cloth curtains. That would have sounded far from attractive not so long ago, but you never saw anything prettier than the thin, translucent, rose colored oil cloth curtains hanging in the bathroom of the "Gingham House" at a very select country club in California.

I had my first glimpse of this new fabric there, and since then have admired it in every delightful tint imaginable and in the dainty figured chintz patterns.

The Gingham House

Just to mention that fascinating little Gingham House makes it hard to leave it without trying to give you a more intimate glimpse of its charming simplicity. The thought that it may stimulate your imagination makes it appropriate to speak here in its praise.

It serves as The Ladies' Own, being reserved exclusively for women members. You can't imagine anything sweeter or less pretentious. A little frame cottage, invitingly painted and porched, trees, shrubs and flowers lending their prodigal allurements in true California style.

Inside, you may notice plain wooden walls painted most attractively so that the exposed studding becomes a real decoration in the harmonizing or contrasting shades.

All the casement windows are hung with the freshest of checked gingham curtains. The dressing tables are draped to match. Each of the little bedrooms, the blue, the rose, the green or the lavender, seems like a single verse from one gay little song.

Oh! what a darling honeymoon cottage this would make. Or how it would invite patronage as a roadside tea house with accommodations for stop-overs.

Useful Small Offerings

Less expensive thoughts turn to the delicious ruffled "tea aprons" in every conceivable hue of rubber. They are so picturesque that they would win almost any girl to wash dishes without protest.

Enameled and decorated individual hat holders offer a space-saving device. If store prices seem too high, pretty substitutes can be made of colored glass candlesticks with a plump, padded hat rest of silk or velvet topping its stem.

The Child's the Thing

There should be no problem as to how we can afford to make the child of nursery age happy at Christmas. Unless the small child is more spoiled than it should be, adequate toys can be found in the 10-25 cent stores.

Girls of every age are usually greatly pleased with any personal adornment, particularly if it is of some very new fashion. Next to this, something to beautify their own room appeals to them.

It's difficult to select gifts for growing boys, but one way and another these guileless creatures may be counted on to give many a gentle hint as to their preferences. Every boy of a certain age hankers for a car of his own. Many would accept a bicycle with moderate enthusiasm.

Even a kodak may please, and few fail to appreciate such modest standbys as sweaters, socks, knives, ties and the very latest in handkerchiefs. A smile will greet a fountain pen, everlasting pencil or even, at a pinch, a bully good book.

The Greatest of These

But among all Christmas gifts the greatest of these is love. There's no day like Christmas for cementing the bonds of family affection. We owe the day itself to love; for on Christmas we celebrate the birth of Christ, and we are told God so loved the world that He gave His Son for it.

Rambles of a Horticulturist

(Continued from page 7)

peared to be under excellent control and there was no injury to foliage or fruit so far as I could see. I was also interested in looking over the experimental plots at Wenatchee which are in charge of Anthony Spuler of the Washington Agricultural Experiment Station. Spuler is comparing oil sprays with other materials in a thickly planted orchard badly infested with codling moth. He is using both Volck and home-made oil emulsions. Both are giving good results at strengths of two per cent. I saw trees sprayed three times with oil which were apparently free from spray injury and in which the codling moth control was also good. Spuler stated that his best results were being obtained from a combination of oil and arsenate of lead. He feels that the use of oil sprays once or twice early in the season when the codling moth infestation is heavy, followed by arsenate of lead, would probably give the best results.

Fermented Cider for Codling Moth

Mr. Spuler has been obtaining excellent results in combating codling moth with fermented cider bait. Yeast is added to the cider, and it is permitted to ferment for three or four days. It is then placed in wide mouthed receptacles which are hung fairly high in the trees and near the outer portions, preferably in open spaces. The moths in flying about the orchard are attracted by the cider and are killed when they fall into it. During the flying season, an average of about 100 moths were found in each vessel every two days. The liquid is replaced occasionally. If this method continues to prove successful, and if all growers in a concentrated and isolated section like Wenatchee should use it, the season's infestation of codling moth could be reduced to small proportions.

At the time of my visit the growers were thinning their fruit. The second thinning had been completed by many. The amount of fruit removed was amazing. More was taken off than was left on the trees. As a matter of fact, the apples seemed rather thin to one who is accustomed to seeing apple trees in eastern sections. However, the fruit was well distributed over the trees and promised to make a heavy crop when fully developed. Most growers first remove all defective and small fruits and then space the remainder uniformly at five or six inches apart. Leo C. Antles, production manager for the American Fruit Growers, Inc., follows a different method. He has his men remove all fruits which are undersized, misshapen, located in the shade, or which show stings or worm injury. He says that the average laborer can follow this method better than the spacing method and that he gets better color

and better results in general from it. Thinned apples produce a greater yield than unthinned fruit, according to Antles.

Cover Crops in Common Use

As in other northwestern sections, the apple orchards at Wenatchee were formerly clean cultivated. After a period of this kind of treatment the trees failed to perform satisfactorily. An appeal was made to the county agents and experiment stations, who, after investigation, recommended cover crops. Now practically every grower plants cover crops. Alfalfa is most commonly used. Winter vetch and sweet clover are said to be gaining in popularity. An advantage of alfalfa is that it requires replanting only at long intervals. The ground is usually cultivated in the spring to lower the fire hazard and promote better water penetration. The cover crops tend to lower the amount of color on the fruit, it is said, but they increase the size of the fruit. When cover crops are not grown, nitrate of soda or sulphate of ammonia is used at the rate of three to five pounds a tree. Some manure is also used—it is found particularly serviceable in some instances on soils which do not readily absorb irrigation water.

Growers Use Intensive Methods

Because of the small orchards and high cost of operation, growers give their orchards the most detailed attention. The Wenatchee growers are specialists in the highest sense of the word. The operations of Frank Nelson, whose orchard we visited, illustrate this matter very well. Mr. Nelson seems to know the yield, performance and treatment of every tree in his orchard for years back. He is one of the most enthusiastic growers I have ever seen. Truly it can be said of him that he is in the fruit business for the love of the work and not alone for the money there is in it. He has only about 10 acres. His average yields for seven years have been 900 boxes per acre. He prefers large sized fruit and sacrifices color to some extent to get it.

The Wenatchee district is well equipped with marketing facilities. The Wenatchee District Co-operative Association accommodates growers who desire to market co-operatively. There are numerous private marketing organizations in operation in the valley. There are numerous large and well equipped packing houses in the district, both co-operatively and privately owned. These packing houses play a very important part in the fruit industry and enable growers to handle the crop efficiently and economically. The section has not had all of the cold storage facilities needed, but these are gradually being enlarged.



The apples on the ground were removed in the second thinning in the orchard of F. H. Moore



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The new form, according to Mr. Yard, is seven times finer than any form of commercial sulphur on the market today. The fineness of the material promises to permit of a much better and larger coverage of leaf surface in spraying. Field tests made on grapes and cantaloupes in the Imperial Valley confirm laboratory findings, which indicated that the compound is more efficient in killing disease spores than the ordinary commercial forms of sulphur.

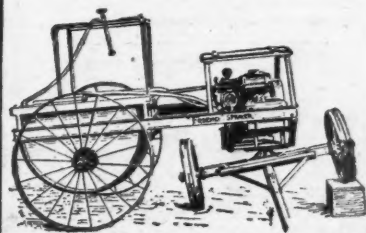
The new form of sulphur is obtained as a by-product from manufactured gas. It is possible to secure large quantities of this new form of sulphur from coals used in gas manufacture. Larger quantities of the compound can be obtained from low grade than from high grade coals.

No doubt this new form of sulphur will be regarded with interest by fruit growers and horticultural experts of the country.

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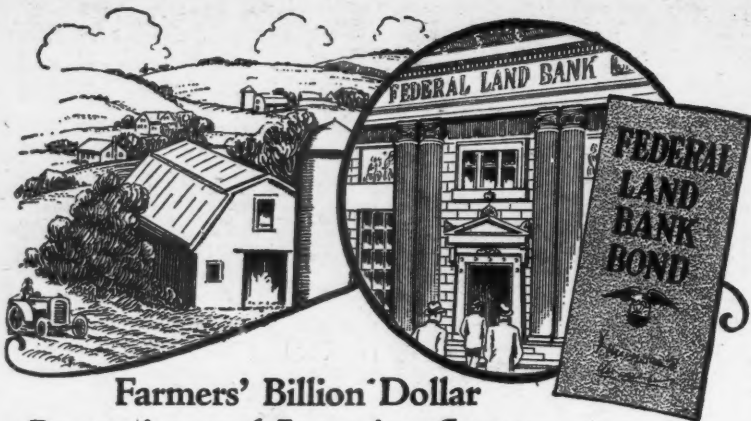
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CHATS WITH FRUIT GROWER'S WIFE

By HAZEL BURSELL



Gifts from the Kitchen

ARE YOU wondering what to give your relatives and friends this Christmas? Why not send gifts from your kitchen? There are so many things you can make, and every one will be appreciated. No gift that you buy can carry more Christmas spirit and cheer than those you make.

You may select an assortment of jellies, jams, relishes, or such things as you have canned during the summer. Then there are some jams and marmalades which can be made now. Salted nuts and candies, especially the fruit candies, such as stuffed dates and candied peel, make most acceptable gifts. Cakes of all varieties, but especially fruit cakes, cookies and plum puddings, increase the choice of gifts.

Wrap Gifts Gaily

Make up these gifts into attractive packages. Use quaintly shaped and brightly colored jars for your jams and conserves. A basket containing an assortment of jellies and jams and with a spray of holly and gay red ribbon tied to the handle, will make an ideal gift for the friend who does little or no canning and preserving. Wrap and tie each package gaily, using gold, red, white or figured tissue paper and tying with red, gold or silver ribbon or twine, depending on which harmonizes best. Make each gift a pleasure to unwrap. Attractive paper boxes or gaily decorated round tin boxes are perhaps the most suitable containers for fruit cakes, candy, salted nuts and cookies, as they stand the rough handling received in transit and keep the contents of the box from drying out.

The carrying qualities of any food article which is to be sent through the mails must be carefully considered in choosing the gift. Certain candies, delicious when freshly made, become hard, dry lumps, or soggy, shapeless masses on being given into the tender care of mail clerks and other postal employees for a few days. Fudge and rocky road dry out quickly. Caramels, nougat, and taffy must be packed solidly, with each piece wrapped separately in waxed paper, if they are to reach their destination in any sort of order. Crisp cookies, fruit cakes, hard candies, and fruit candies are best for shipping any distance.

Apricot Conserve

Here is a recipe for winter conserve which can be prepared especially for Christmas gifts: Soak one pound apricots overnight in sufficient water to cover them. In the morning add one pound of crushed pineapple and three cups sugar. Cook for 20 minutes, stirring constantly to prevent scorching. Then add one cup chopped nut meats and pour into sterilized jars. Seal the jars or cover with hot paraffin. Putting the "plumped" apricots through the coarsest knife of the food chopper would assure you of an even consistency, without much effort.

Butterscotch Cookies

For crisp, deliciously-flavored butterscotch cookies, cream one-half cup butter with two cups dark brown sugar, add two eggs unbeaten, and beat till thoroughly blended. Add three and one-half cups flour sifted with one-half level tablespoon soda and one-half tablespoon cream of tartar, and blend well. Form into two rolls about one and one-half to two inches in diameter. Let stand in cooler for one hour, then slice in rings or ovals about three-eighths inch thick. Arrange well apart on greased

baking sheet and bake in quite hot oven for 10 or 12 minutes, or until nicely browned. Remove and let go dry and crisp before serving or wrapping for shipment. This recipe makes about five dozen medium-sized cookies.

Filled Fig Cookies

Cream together three-fourths cup butter and one cup sugar. Add one egg well beaten and two teaspoons almond extract. Add two and one-half cups sifted pastry flour, enough to make a soft dough which can be rolled out. Chill the dough, roll out thin, and cut with a round cookie cutter. Put a teaspoonful of fig filling on one cookie, moisten the edges slightly, and cover with another. Bake at 450 degrees Fahrenheit for 11 minutes (this is a hot oven). To make the fig filling, put one pound of figs through the food chopper and cook over hot water with one cup of sugar and three-fourths cup water until thick. Cool and add one-half teaspoon lemon extract.

Nut Bars

Cream together one-half cup each of butter and sugar. Then add two beaten egg yolks, one cup of pastry flour, and one and one-half cups finely chopped blanched almonds. Mix thoroughly and shape the dough into rolls about three inches long and about as thick as a finger. Brush with egg white and bake at 400 degrees Fahrenheit (quite a hot oven), from 12 to 15 minutes.

Christmas Cake

Stone one pound of dates and leave whole. Shell one pound of walnuts and leave as they come from the shell. Sift together three times one and one-fourth cups pastry flour, one-half teaspoon salt and four teaspoons baking powder. Mix this thoroughly with the dates and nuts. Add one cup sugar and mix again. Add four beaten egg yolks and mix well. Then add four egg whites beaten stiff and one teaspoon vanilla. Bake in slow oven (300 degrees Fahrenheit) for one and one-half hours, or longer if necessary.

Orange Marmalade Cookies

Cream together one-half cup butter and one cup sugar and add two well-beaten eggs. Sift together three cups of pastry flour, one teaspoon salt and one-half teaspoon soda. Add this to the first mixture, with three-fourths cup of orange marmalade. Drop by teaspoonfuls on a greased baking sheet and bake at 400 degrees Fahrenheit (oven quite hot), for 10 to 12 minutes. Remove cookies from baking sheet immediately on taking from the oven.

Pack Christmas Hamper

Every child, young or old, who is away from home during the holidays, whether at school or alone in a distant city, deserves a Christmas hamper packed with love and good wishes and extra-special "eats." Select for this purpose a strong corrugated cardboard box to be tied with heavy twine, or a wooden box which may be nailed securely. Make the inside gay with bright seals, ribbons, wrapping papers and decorated jars and boxes, with plenty of packing paper to prevent damage in transit. Label plainly with both the consignee's and your own address, and mail in plenty of time so that the contents of the hamper may be enjoyed on Christmas day without fail.

Canned Chicken

Some sort of fowl will be the first consideration for the Christmas hamper. Roast chicken, turkey or duck

might be used if son or daughter close enough so that none of the usual delays can possibly affect it. Canned chicken would be safer to ship during the Christmas rush. Scald, pluck, singe, scrub and draw chickens, saving hearts and livers. Cut in pieces and pack in quart jars, putting wings with tips cut off, second joints and large pieces of white meat in one jar. In other jars, pack the hearts, livers, thin rib pieces, neck, etc., to be used for dishes in which small pieces of chicken are called for. In each jar put one and one-quarter teaspoons salt and fill jars with lukewarm water. Cover and partially seal. Put in boiler and surround with warm water. Sterilize from two to four hours, depending on the age of the chickens. Put a warm cloth on kneading board, remove jars from boiler while hot, set on cloth, cover with several other cloths, and let cool until morning. Then the chicken is ready for packing in the hamper.

Salad dressings and sandwich fillings may be sent in jars, together with a loaf of home-made bread. They should be used as soon as received.

Olive Mayonnaise

Put one cup stuffed olives through food chopper, add two teaspoons mustard, one-eighth teaspoon mace, three tablespoons tarragon vinegar and one cup of mayonnaise, with salt to taste. Pack in jar and put in the Christmas box. This dressing may be used with the canned chicken, on lettuce, or as a sandwich filling.

For the mayonnaise dressing called for above, beat the white and yolk of one egg together until frothy, then begin adding a good olive oil or salad oil, drop by drop, beating constantly. The amount of the oil added at one time may be gradually increased as the mixture thickens. Keep on adding oil and beating until dressing is thick and heavy. Add one teaspoon salt, one-quarter teaspoon white pepper and the juice of one lemon.

Egg Sandwich Filling

Hard cooked eggs 1/4 t. pepper
1 T. chopped cress 1/2 t. paprika
1 T. pimento 1/2 t. vinegar
1/2 onion 1 1/2 T. salad oil or butter
1 t. salt

Chop hard cooked eggs, cress and pimento, mix and add onion cut very fine, seasonings, vinegar and salad oil or butter. Pack in a jar and cover with melted butter.

Cheese and Egg Filling

1 T. flour 1 small cream cheese
1 T. sugar 1 pimento
1 T. vinegar 1 t. onion juice
1/2 c. milk 2 hard cooked eggs
1 egg Salt

Mix flour and sugar in top of double boiler, add vinegar, milk and egg slightly beaten. Place over boiling water and cook, stirring constantly until thick. Remove from fire and when cool add cheese, pimentos finely chopped, onion juice, and eggs, chopped. Season to taste with salt and pepper. Pack in jars and cover with melted butter.

A practical combination for the

Christmas hamper is a loaf of nut bread, a jar of salad dressing, a jar of sandwich filling, and an assortment of jams, jellies and marmalades. The young folks can then work out their own sandwich combinations with these materials.

Never-Fail Nut Bread

2 1/2 c. bread flour 1 1/2 c. milk
4 t. baking powder 2 eggs
1/2 c. sugar 1 c. nut meats
1 t. salt 4 T. flour

Sift flour, baking powder and salt. Add milk and eggs slightly beaten, mix well and add nut meats broken in pieces and mixed with the four tablespoons of flour. Bake in slow oven at 250 degrees Fahrenheit for 15 minutes, increase heat to 350 degrees Fahrenheit and bake one hour.

Dessert

Then comes the problem of dessert, and that should be easily taken care of, as you have an endless variety from which to choose. A two-pound pail of rich, spicy, steamed pudding made from the family recipe and accompanied by a jar of hard sauce would be most acceptable. The hard sauce is made by creaming one-third cup butter, adding one cup confectioner's sugar gradually, while beating constantly, then add two-thirds teaspoon vanilla to flavor.

Include Fresh Fruit

Be sure to include John's or Mary's favorite fruit cake, which may be kept and enjoyed in weeks to come. Then send along a carefully packed collection of fresh apples, grapes, oranges, grapefruits or any other fruit which may be grown on the home place. These will serve as a centerpiece for the dinner table Christmas day, and will also be greatly enjoyed when the time arrives to eat them.

Fail not to put in the hamper a generous assortment of raisins, home-made candies and salted nuts. Recipes for the candies may be found in the recipe section of this department. Stuffed dried fruits would be greatly appreciated.

Prepare Salted Nuts

To prepare salted almonds—Blanch Jordan almonds by pouring on boiling water, letting stand two minutes, adding cold water, and then rubbing off the skins. Dry between towels. To one-fourth pound of blanched almonds use one-third cup butter and fry slowly in an iron skillet until delicately browned on all sides. Stir often. You may put them in a hot oven for a few minutes to finish roasting. Drain on brown paper and sprinkle generously with salt. For salted peanuts, buy the roasted peanuts, remove brown skins and fry in butter, the same as for salted almonds. Pecans and filberts may be shelled and treated in the same manner, with excellent results.

Who among your most honored friends and best loved members of the family would not enjoy receiving such gifts from your own kitchen as are herein suggested? Try it this year and see how popular these gifts are!

water), until it reaches 238 degrees Fahrenheit by thermometer. Add butter, remove from stove, and let stand without stirring till cool. Then beat for a time, add nuts and flavoring, and beat till it begins to be creamy. Pour at once into a buttered platter. Mark into squares as it begins to set, and when cold, cut in pieces and remove from pan. Exclude from air if fudge is to be kept for even a few hours, as it dries out easily.

Butterscotch Almonds

Dip almonds in the soft cream butterscotch candy, given above, and put three together on an oiled tin sheet. Marshmallows are also delicious dipped in cream butterscotch. Take up with a two-tined fork and put on an oiled tin sheet.

Vassar Sweets

Shape a small ball of your favorite fudge, having a nut meat in the center. Dip this in melted fondant flavored with oil of peppermint. When firm, dip quickly in cream butterscotch mixture (recipe given above) and let it harden. Last of all dip in melted dipping chocolate and roll in cocoa. This type of candy would require considerable time in preparation.

Peanut Penuche

1 T. butter 1/2 c. milk or cream
2 c. brown sugar 1/2 c. chopped peanuts
1/2 t. salt 1 t. vanilla

Melt butter in saucepan and add sugar and milk or cream. Bring to the boiling point and let boil until mixture will form a soft ball when tried in cold water, or until it reaches 238 degrees Fahrenheit. Remove from range, beat until creamy, and add nuts sprinkled with salt. Turn into a buttered pan, cool slightly, and cut in squares, using a sharp knife. Walnuts or shredded cocoanut may be used in the place of peanuts. If cocoanut is used, add about 1/2 t. vanilla.

Nougat

3 c. sugar 3 egg whites
1/2 c. boiling water 1/2 c. chopped walnuts
1/2 c. corn syrup 1 t. vanilla
1/2 c. chopped candied cherries

Boil sugar, water and syrup together without stirring. Cook until nearly brittle when tested in cold water, or until 289 to 290 degrees Fahrenheit is reached. Remove from fire and when bubbling has

ceased pour slowly on stiffly beaten egg whites, beating constantly. Beat vigorously until stiff and creamy. Add cherries, nuts and vanilla. Pour into a greased pan, and when it begins to harden mark into squares or slices. Cut and wrap pieces in paraffin paper. Part of the mixture may be colored with fruit coloring or chocolate, if desired.

Stuffed Dried Fruit

Steam 10 minutes, or until tender, prunes, apricots, figs or dates. Make an opening and in place of stone put a ball of fondant or piece of marshmallow, together with a bit of nut meat. A toasted almond, pecan, pistachio nut or walnut may be used without the fondant. Roll in powdered sugar, put in paper cases and pack closely if for Christmas box. They may be eaten fresh or wrapped and stored for later use, as they keep well.

Chocolate Caramels

2 c. sugar 1/2 c. cream
1 c. condensed milk 1/2 c. butter
1 c. corn syrup 6 sqs. chocolate
1 c. milk Chopped almonds
2 t. vanilla

Put all the ingredients, except vanilla and nuts, into a large saucepan and cook over a slow fire, stirring constantly until 244 degrees Fahrenheit is reached. At this stage quite a firm ball will be formed when a little of the candy is dropped into cold water. Add vanilla and nuts, turn out into a buttered platter, and cut into inch squares with a sharp knife. Wrap each piece in waxed paper. This makes a soft chewy caramel. If a firmer one is desired, the temperature may be carried to 246 degrees Fahrenheit. This is a large recipe and makes quite a number of pieces. Less chocolate may be used if a milder flavor is preferred.

Chocolate Coated Marshmallows

Dip marshmallows in melted dipping chocolate and roll in finely grated fresh cocoanut. Be sure that both the marshmallows and cocoanut are absolutely fresh, if you wish the best results.

Table of Abbreviations

1 t. equals 1 teaspoon
1 T. equals 1 tablespoon
1 c. equals 1 cupful
1 lb. equals 1 pound (16 oz.)
1 sq. equals 1 square

All measures are level

Christmas Candy Recipes

NOTHING else can make Christmas seem so truly "Christmasy" as a goodly supply of tempting home-made candies. Commercially made candy, be it ever so good, never brings the unalloyed pleasure to the family or guests that even mediocre home-made sweets bring. Perhaps it's because the element of anticipation enters in. We know exactly how each variety of purchased candy will taste without sampling it, but not so with the home product, for that sameness of flavor is lacking even between two different batches made from the same recipe. And we can have infinite variety simply by choosing dependable candy recipes, following directions exactly, and not making too large a quantity of any one kind. Don't let the family miss the joys of candy making!

Rocky Road

Melt 1 lb. of dipping chocolate over hot water in upper part of double boiler. Then stir in 1 c. nuts and 1/2 lb. of marshmallows, cut or uncut, as preferred. Mix rapidly, just enough to coat, and pour quickly into a warm, oiled platter, tipping to secure a thin, even distribution of chocolate. When cold break up into suitable pieces for serving.

Cream Butterscotch

1 c. white sugar 1/2 c. butter
1/2 c. brown sugar 1/2 c. heavy cream
1/2 c. white corn 1 t. vanilla or lemon
syrup extract
Few grains salt

Put all ingredients except flavoring in saucepan, stir until mixed, bring to boil-

ing point, and boil to 246 degrees Fahrenheit or until mixture is stiff enough to keep its shape when dropped in cold water and molded with the fingers. Remove from fire and add flavoring. Pour in buttered pan and when cool shape into small balls. Roll balls in powdered sugar or wrap in wax paper. If mixture is to be used for dipping, keep hot over warm water while in the dipping process.

Della's Fudge

2 c. sugar 3 T. butter
1/2 c. milk 1/2 c. nuts
1 T. grated chocolate 1 t. vanilla
late 1 T. Karo

Mix all ingredients, except extract and butter, and boil to the "soft ball" stage (works into ball shape when tried in cold

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Present Day Viewpoint Toward Bud Selection and Rootstocks

(Continued from page 4)

French crab seedlings varied from four to 15 millimeters in diameter. The seedlings were budded, and after one year's growth it was found that a decided relation existed between the size of the seedlings and the size of the resulting trees. A group of seedlings 13 millimeters in diameter produced whips 50 per cent larger than seedlings 10 millimeters in diameter.

In a seedling orchard planted in Maine in 1911, the trees in 1922 ranged from one to seven inches in diameter. The trees were of the same age when planted and were apparently in equally good health.

Dr. Karl Sax of the Maine Agricultural Experiment Station studied an orchard of 881 Ben Davis trees. The trees were classified as large, medium and small. One hundred and twenty-one trees were classified as large, and these produced a five-year average of 191 pounds of fruit per tree; 233 trees were classified as medium, and these produced an average of 113 pounds per tree; and 136 trees were classified as small, and these produced an average of 39 pounds per tree. After studying the data from every possible standpoint, Dr. Sax concluded that the differences probably were mainly due to differences in hereditary nature of the rootstocks used.

In another Maine test, 100 trees of 10 commercial varieties were studied. Trees that were large in the second year after planting were relatively large six years later and those that were small in the second year were inferior and runty six years later, with a few exceptions. Extreme care had been taken to provide uniform soil and cultural conditions and to propagate the trees from buds true to variety. The variation in rootstocks was held to be mainly responsible for the differences which existed.

California Experiments

The California Experiment Station found that marked differences existed in the size of citrus seedlings, all of which were of the same age and from the same source. The seedlings were separated into three sizes and budded with uniform material. After the trees had grown for four and one-half years, the differences were as distinct as when the trees were budded. At the end of two and one-half years the larger trees began to bear fruit, the medium trees bloomed but bore no fruit, and the small trees failed to put out blossoms.

In another California test, citrus buds from four varieties were carefully taken from trees of known character and budded on seedling stocks. From this material 18 large, 18 medium and 18 small trees of each variety were transplanted to an orchard. After four years the three groups of each variety bore the same general size relations to each other.

Dr. Weber of California found that large nursery trees produced orchard trees that after five years of growth were 50 per cent larger than small nursery trees. Extreme care had been taken to make all conditions as uniform as possible, and it was concluded that differences in the hereditary nature of the rootstocks were mainly responsible for these differences.

Prof. R. G. Hatten of England has been one of the foremost leaders in the investigation of rootstocks. He obtained apple seeds from pomace and grew trees from them. Of 96 trees remaining after 2 years, 43 were classified as tall and vigorous, 39 as medium in size and 14 as small and dwarfish. Uniform soil and cultural conditions had been provided.

In Minnesota 4000 seedlings of the Malinda apple were grown. Marked differences in size were noted in the seedbed. Before planting in the nursery, 200 of the seedlings were discarded as being too small and runty. The remainder were planted. In the

(Concluded on page 24)

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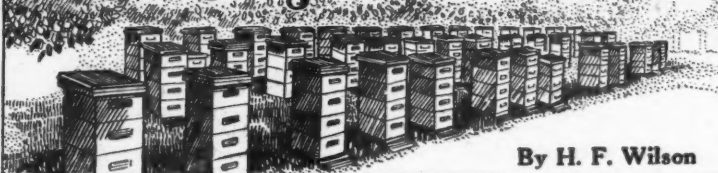
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Bee Keeping for Fruit Growers



By H. F. Wilson

Are You Planning to Start With Bees?

IF ANY of you have become inoculated with the bee fever, it would be well for you to read over the recommendations given here for beginners.

First, it will be necessary for you to make arrangements to secure the bees at the time when they are wanted. Colonies of bees may be secured either in the fall or spring, but it is usually better for a beginner to make the start in the spring of the year.

It is not always an easy problem for the experienced beekeeper to bring bees through the winter in the best of condition, for unless the bees have good stores and are in excellent shape, they may die out during the winter, thus causing discouragement at the very start. Bees ordinarily will cost somewhat more in the spring than in the fall, but this is to be expected, since the beekeeper takes the risk of carrying the bees through the winter period. If it is possible to secure full colonies of bees from a local beekeeper, this is the better plan, particularly if you can secure some help from the beekeeper in making your start. But there is one important point which you should always keep in mind. Do not buy bees from a beekeeper unless he has a certificate of inspection showing that his bees are free from disease. You may also secure information from the beekeeper regarding the necessary equipment to buy.

There are two sizes of hives now in use. One is called the eight-frame hive. This size contains eight frames in the brood chamber. The brood chamber is that part of the hive in which the bees rear their young. The other size contains 10 frames, and this is the size recommended, as the eight-frame size is too small for good beekeeping.

If it is not possible to secure full colonies of bees from a beekeeper, then it will be necessary for you to buy package bees from some beekeeper in the South. This is the method now most commonly practiced; even the beekeepers buy many packages to strengthen weak colonies in the spring. You may place your order to have the bees delivered at almost any time after April 1. The proper time to have such packages arrive is shortly after the trees and shrubs begin to bear pollen in the spring. Bees may be bought in packages containing from one to five pounds. Do not buy less than two pounds for each colony you wish to start, and three-pound packages will prove the most satisfactory. A queen should be ordered with each package. Instructions for transferring the bees from the shipping cages to the hives accompany each shipment.

As soon as the bees arrive in the packing cages, prepare 10 pounds of sugar syrup for each colony, according to the following method: Use a good grade of cane or beet sugar. To each two pounds of sugar add one pound of water, by weight, and heat until the sugar is thoroughly dissolved. This sugar syrup may be fed in pans placed on top of the frames inside an extra empty hive body or by means of friction-top pails in which a few holes have been made in the top. In using the pails, place the syrup in them, then put on the cover and invert the pail on the frames above the bees. If you do not have feeding boards, then place a layer of

newspaper over the frames and around the feeding pails. This will prevent the loss of warmth from the colonies.

When your bees arrive in the spring it may not be possible for them to gather nectar from flowers in the field. It will therefore be necessary for you to continue feeding them sugar syrup until dandelions or fruit bloom come on. From then on, the bees will be able to take care of themselves. Proper supers must be placed on the hive for storing the surplus honey crop. The beginner in beekeeping should start with section honey supers. This will make it unnecessary to buy such equipment as uncapping knives and extractors. Bee supplies can be secured from some local merchant in practically every large town in the United States.

Begin your preparations for this work by securing a number of bee bulletins and a good book or two on beekeeping this fall, and read these carefully during the winter. Also secure whatever equipment you will need and prepare the hives before the arrival of the bees.

Relation of Bee Diseases to Honey

THERE seems to be a general belief among people at the present time that a reference to diseases of bees indicates that honey may be contaminated, and that there is danger of these diseases being transmitted through honey. However, this idea is entirely incorrect, since there is no relation whatever between the diseases of bees and the diseases of other animals, except that some of these diseases are caused by bacteria.

Bees, like other living beings, are subject to ill health, and they are subject to diseases to about the same extent as other domestic animals and people. In reading some of the accounts of the difficulties of beekeepers, one might gather that all bees are diseased. This, however, is not the case, since only now and then these troubles exist, and they are quickly wiped out with treatments applied by the beekeeper. Honey itself is to a certain degree a germicide. Our experimental tests show that the bacteria which cause the ordinary diseases of mankind, such as typhoid fever and dysentery, cannot live in honey for more than a few hours.

Diseases that attack bees cannot be carried to man, and there is not the slightest danger of any of our present human diseases being carried in honey. The bee diseases with which we are concerned attack the young or larval stages of bees and destroy them before they mature into bees as ordinarily seen by the public.

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Present Day Viewpoint Toward Bud Selection and Rootstocks

(Continued from page 22)

next two years 1903 seedlings, or nearly 50 per cent of the total number, were discarded as being inferior for tree production purposes. Some of these were discarded because of faulty shape.

Other Effects of Rootstocks

The effects which have been noted relate chiefly to the influence of the stock on size, vigor and productivity of orchard trees. But there are other important influences also. The color of McIntosh apples, for instance, is made lighter by topworking the variety on Duchess. Several investigators believe that the degree of sweetness or sourness of fruits is influenced appreciably by the stock. Hatten of England believes that the coloring and size of the fruits are influenced to some extent by the stock. The time of maturity of both the wood and the fruit in some varieties may be influenced by the stock. Certain late varieties of apple are sometimes worked on the Duchess in northern sections to make them mature earlier and thus adapt them to the climate.

There are marked differences in the resistance of various stocks to disease, and thus susceptible varieties worked on roots resistant to root and crown diseases thrive better than they otherwise would. In this way the resistant stocks make the trees healthier and longer lived. In the eastern part of the United States seedlings grown from seeds of the wild *Prunus persica* native to the South are preferred as rootstocks for peaches to seedlings from seeds of cultivated varieties. Seedlings from yellow fleshed varieties like Elberta are regarded as more susceptible to collar injury than seedlings from white fleshed sorts.

There is little doubt but that seedling stocks of a given species differ greatly in their ability to extract food and moisture from the soil, and thus different rootstocks may vary in their ability to feed the trees. Some stocks are shallow rooted in nature, some are deep rooted and others are intermediate in root habit; such differences could readily cause marked variations in the ability of trees to withstand drought. Some stocks by reason of being good feeders may make the scion more vigorous than would otherwise be the case. Stocks which are susceptible to disease are more likely to transmit the same to the scion than resistant stocks. Pear stocks are known to differ appreciably in their resistance to blight. Some stocks shorten the lives of the trees. As a rule, a weak growing variety grafted on a vigorous stock will result in a short lived tree.

We thus see that rootstocks exert a variety of influences on the resulting trees, including effects on vigor, size, productivity, color of fruit, habit of the plants, resistance to disease and drought, maturity of the wood and fruit, hardiness and others. Not only do stocks of various species have different effects on the trees, but even among seedlings of a given species there are marked differences in the influence on the scions.

It should be emphasized that the rootstock influences mentioned affect only the individual tree growing on the stock and are not carried to the next generation of trees by scions or buds taken from the tree. In other words, the effects end with the death of the tree in question. The hereditary composition of the scion and bud material is not changed by the rootstock upon which the tree is growing.

Summary

Now, with the principal facts before us, we are in position to consider the application of the situation to our nursery and orchard practice. As far as bud selection is concerned, I feel that we cannot expect any progress from its use except in cases of bud sporting. Bud sporting is rare,

and it is as likely to result in an inferior strain as in a superior one. We should take advantage of all the desirable bud mutations which occur, but we should not regard every minor difference in productivity or quality as the result of bud sporting. I feel that we would be wasting valuable time and effort by taking this viewpoint. We should, of course, obtain our propagating material from healthy, vigorous trees, but we should not by so doing lead ourselves to believe that we are gradually improving the variety.

With reference to rootstocks, I think we are faced with a different proposition. I think that there are tremendous opportunities for improvement along this line, and I believe we shall be making fundamental changes in our rootstock program in the future. The proposition is still somewhat in the experimental stage, and no one can say definitely just how far the development will go or what its exact nature will be. That there will be progress, however, no one familiar with the situation disputes.

It seems to me that one thing has already been definitely established, and that is that the best orchard trees are produced from the largest and most vigorous seedlings. In my opinion, nurserymen who buy their seedlings should buy only the very best grade. It seems to me they are placing a permanent handicap on the orchards of their customers when they use any other grade of seedlings. If seedlings are grown at home, then I believe that only about the best and largest third should be used. After the budded and grafted trees begin to grow, they should be further culled, and all slow-growing and otherwise inferior trees should be eliminated.

In my opinion, horticultural investigators are going to develop some valuable information with reference to the adaptation of different varieties of fruits to soil and other conditions by the use of different species of rootstocks. I think we are going to be selecting our species of rootstocks for various conditions more carefully than we have ever done before.

But we are going much further than this, in my opinion. We are going to be propagating trees, as a result of grower demand, not only on certain species of rootstocks, but on certain strains or varieties of rootstocks within a species, for, as we have seen, fruit seedlings differ markedly in hereditary composition and exert different influences on the scion as a result. It seems to me that as we study this problem we shall find that some strains of seedlings are better adapted than others for a given variety of scion, for a given soil, for a certain climate, for resisting a particular root or trunk disease, and so on. It seems to me that there is even a good chance that we shall be using several strains or varieties of rootstocks for each variety of apple, for instance, to adapt it to different soils, climates and other conditions.

A development along this line is going to raise the question as to how the rootstocks can be preserved and multiplied. We cannot let such superior seedlings grow up and use the seeds from them for growing more seedlings, for in the process of seed production, cross pollination occurs in most cases and recombination of hereditary units takes place. Thus, the hereditary make-up of the new seedlings would be unlike that of the parent. The only means by which we shall be able to preserve and multiply superior strains of rootstocks is through the use of asexual reproduction. This is going to be a difficult thing with some of our fruit species, but the Department of Agriculture and other institutions have already been working on the problem, and they have developed methods by

which rootstocks can be multiplied asexually on a practical basis

Conclusion

In conclusion, therefore, I feel that the bud selection question is not going to bring about any material changes in our nursery and orchard practice, but I feel that in time the rootstock problem is going to bring about some far-reaching changes. Growers are not seriously concerned about the question as yet, mainly, I believe, because experiment stations have not had time to develop rootstocks of proved merit and have not been saying much about the question. However, many leaders in government and state horticultural work regard the rootstock question as one which offers the greatest possibilities today in horticultural research, and many of them are working on the problem. In a relatively few years, in my opinion, the government and state authorities are going to have definite information at their command, and they are then going to be giving out advice to growers on the subject. It is then that the growers will become acutely interested in the question, and their purchasing demands will be expressed accordingly. The new developments are not going to make the nursery business any easier. On the other hand, I believe they will tend to make it more complicated. It is my recommendation that you keep yourselves familiar with developments pertaining to rootstocks so that you can shape your business accordingly.

Classified Advertising

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SUN-CURED SMOKING TOBACCO, MILD, fragrant aroma, three years old. Ten pounds, two dollars. Sample free. Louis Igleheart, Owensboro, Kentucky.

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MISCELLANEOUS

MCCARTY'S OIL EMULSION—PERFECT DOB—pat spray on peaches, apples, all kinds fruits, shrubs, shade trees. Write for detail circular. McCarty Seed Co., Evansville, Ind.

APPLE WRAPS, SHREDDED OILED PAPER, orchard supplies, all kinds. S. H. Burton, distributor, Washington, Indiana.

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Engineering for the Fruit Grower

By E. W. Lehmann

Pumping Water by Electricity

AT PREVAILING rates it costs from one to two cents to operate the ordinary small domestic electrically driven pump for one hour. On this basis it hardly seems that anyone who has electricity available could afford to pump water by hand. Only the cheapest labor can compete with the machine, and this is usually much to the disadvantage of the laborer. In pumping water for house use, it takes from one to two kilowatt hours for 1000 gallons, depending on the depth of the well.

Another big advantage of this method of pumping in addition to low cost is that the pumping operation can be made entirely automatic. The motor is started when the water supply is low and stopped when the supply is replenished. When man is depended on, there are times when he cannot be started automatically. Another feature of the electrically operated pump is the possibility of securing fresh water direct from the well even though the tank is filled. This is made possible by a faucet with special pipe leading direct to the pump.

An abundant supply of water is needed on every farm, both during the winter and summer. If your method of providing it is inefficient and takes too much of your time, you should give attention to the problem. Any farm operation which must be looked to each day, like providing water, whether it is for the household or the stock, deserves more than passing attention. Bulletins on the subject may be secured from the United States Department of Agriculture as well as from the state experiment stations.

The farmer who has electricity available for pumping is more fortunately situated than the farmer who depends on some less adequate method.

On a recent visit to an Indiana poultry farm, the water supply system was called to my attention. The farm home, as well as the poultry houses, nestled on the slope of a wooded hill overlooking the Wabash River. On top of the hill a concrete tank had been constructed, below the ground surface, with sufficient storage capacity to take care of the needs of the farm. An electric motor pumped the water to the top of the hill and it flowed back under the force of gravity. It was a simple system and adequately served the needs of this farmer. Many other farmers similarly situated might easily take advantage of their location to install a water system with storage capacity for several days' supply. With good electric service from either a high voltage power line or from a unit electric plant, the capacity of the storage tank is not a great item, since the system can be easily made automatic, as already pointed out.

Building Houses of Earth

THE HIGH price of lumber and other building materials has caused many people to think a long time about their building problem. The result is a revival of interest in the old time method of constructing buildings out of rammed earth. A number of different experiment station workers have been busily engaged testing out the merits of this kind of construction under different conditions, and recently Farmers' Bulletin 1500, on rammed earth walls for buildings, was issued by the United States Department of Agriculture.

Prefacing this bulletin we find this statement: "Earth has been used for building dwellings from time immemorial. One method of use, superior to others, and which was known to the Romans, has

been preserved by tradition to modern times.

"This method consists of ramming slightly moist, specially selected earth, without the addition of straw or other material, between movable forms, and is known by its French name, 'pise de terre,' which means 'rammed earth.'

"Pise de terre is a reliable building material when properly handled and is admirably adapted to structures on farms distant from transport routes.

"Little information has been published on rammed earth in the United States. The contents of this bulletin were abstracted chiefly from accounts of experimental work in England."

It is further pointed out in this bulletin that although this type of construction is not known by modern builders, from all reports it is a method of construction with many advantages not possessed by adobe, a type of construction used quite generally in the southwestern part of the United States, and in some respects is superior to frame and masonry.

As to economy of this type of construction, it is stated that, "No permanent building material is cheaper, and when spare-time farm labor is employed, very little cash outlay is required to erect durable structures, especially when the roof timber is cut from the farm wood lot and concrete made with local gravel is used for the floors."

Keeping Out the Cold

CONSIDERABLE fuel may be saved this winter and the house made more comfortable by observing a few simple measures in keeping out the cold. If the cold is kept out, the heat will be kept in, and economy and comfort will be the result.

All windows and doors should be made tight. Weather strips may be secured at little expense and are a great aid in making the doors and windows tight. Storm doors and windows cost more but are more effective than weather stripping in keeping the cold out and the heat in. A layer of air between the panes helps to hold the heat.

The best built homes are now being insulated with special building materials to hold the heat. An insulated attic not only helps to keep the house warm in the winter but also cool in summer.

In most houses special ventilation is not needed. The occupants of the house depend on the entrance of fresh air when the doors are opened and on the entrance of air through cracks. The loss of considerable heated air through the fireplace may be avoided if the damper is kept closed when the fireplace is not in use.

Danger of Fire in Winter

DON'T overlook the fact that the greatest danger of fire from the house heating equipment is during the cold winter months. While many fires start from defective chimneys, there are also fires that occur as a result of forced firing. The furnace or stove gets overheated, the smoke pipe gets red hot, the soot burns out, and sparks are carried onto the roof. The practice of burning the soot out of the flue when the roof is wet is a good one.

The great danger of a fire from a defective flue can be appreciated when we stop to consider that such a fire usually starts in the attic or some other concealed place and is liable to gain considerable headway before it is noticed. If you have not inspected your chimney or cleaned the rubbish from the attic, the best time to do it is now, not next spring.

The Cranberry Industry of Oregon

(Continued from page 5)

bogs are naturally rich in fertility. Fertilizers are seldom, if ever, used. Probably an average yield for good, bad and indifferent bogs would amount to from 90 to 100 bushels to the acre. This, however, is far below the possibilities of Oregon cranberry fields when given reasonably good care. Some bogs have averaged as high as 250 bushels per year for several years. Yields of 350 to 400 bushels per acre are nothing extraordinary, and in exceptional cases yields of 500 to even 600 bushels per acre on small acreages have been recorded.

Marketing

Western berries are now being handled very largely in boxes holding one-third of a cranberry barrel or nearly a bushel. The end of the box is usually printed with the grower's name and number and the name of the organization selling the berries. Ventilation is provided in each side of the box. Box cars are commonly used for shipping in moderate weather and to points along the Pacific Coast. For shipments farther inland and in cold weather, the refrigerator car must be used. Capacity loads run from 400 to 600 boxes per car, depending upon the size of the car.

Practically all of the cranberries in Clatsop county, Oregon, are marketed through a co-operative association known as the Pacific Cranberry Exchange Co-operative, with headquarters at Astoria. The product goes through the ordinary channels of trade, mostly along the Pacific Coast from California to Alaska, and some of the cranberries are shipped as far east as the Middle West. Prices obtained by the exchange range from \$8.50 to \$13.50 per barrel, depending upon the quality of the berries.

The cranberries produced in Coos county, in the southern part of the state, are marketed by commission houses and are sold, for the most part, in far western markets.

Conclusion

There is, undoubtedly, considerable room for expansion in the cranberry industry of the Pacific Northwest. Washington has 5000 or 6000 acres that can be planted to this crop, while Oregon contains 500 or 600 acres more that are useful for cranberry growing. The future of the industry will depend particularly upon successful control of insects and plant diseases, upon increasing the general level of production, upon improving methods of handling during rainy weather especially, and finally, upon more effective plans for marketing.

Golden Jubilee Peach

AT THE summer meeting of the New Jersey State Horticultural Society further information was given out by Prof. M. A. Blake about the Golden Jubilee peach, which offered such excellent promise in 1925. As in 1925, the new variety ripened its fruit this year several days earlier than Carman. On August 16, most of the peaches were soft-ripe. They closely resemble Elberta in form and color and are of the freestone type.

The original tree was an open pollinated seedling of another station seedling that was a cross between the Elberta and the Greensboro. The variety represents the greatest advance made by the New Jersey Department of Horticulture in peach breeding. All of the available buds were used during the budding season for the propagation of trees which will be distributed to growers in the fall of 1927.

"Say, Dave, what does a husband do who misses a train by which he promised his wife to return?" "Can't tell you," replied his friend, "as I am not married. Do you know?" "Sure," said Dave. "He 'catches' it when he gets home."—The Realty Digest.



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Profitable Poultry

By Ralston R. Hannas

Mate Breeders This Month

IT IS not yet time to hatch, but it is time to prepare for the hatching season by mating the breeders. This is especially necessary if any real early hatching is to be done in January or February.

Mating the birds at this time gives one an opportunity to see if the males are lively enough and if they will mate with the hens. It will give the males time to settle who is boss of the pen and get their fighting over with before the breeding season actually begins. It will give sufficient time to allow the eggs to be fertile before one begins to save them for hatching. The breeders will have plenty of time to become used to their quarters.

If there are sufficient males, it is a good plan to put an extra male beyond the number needed in the pen so that if one dies it will not be necessary to add another male to the pen. Adding another male after the males are already in the pen will cause fighting, and one or more males are likely to be spoiled for breeding purposes.

In selecting breeders, the same care in choosing for health and vigor must be used with males as with females: large sturdy bodies, erect carriage, bright eyes and general "cockiness" are wanted in males. The same things are desired in the females, except, of course, that they are not expected to show cockiness. But they should show determination in every move—they must not be slow and draggy.

One male to 15 or 20 females with Leghorns or other light breeds should give good results; with the heavier breeds, one male to 10 or 12 females should give good results. It is a good plan to clip the fluff (in the region of the vent), in the case of the heavier breeds, of both males and females, to insure no difficulty in mating. The presence of this heavy fluff is often the cause of poor fertility.

Germinated Oats

GERMINATED oats have come to play an important part in feeding poultry. Many poultry keepers feed them instead of sprouted oats. They do not, however, take the place of sprouted oats, for greens are needed by the chickens, and germinated oats are not green. Their value lies in the diastase that sprouting grain contains, which aids in the digestion of starch. They may be fed alone or mixed in the mash; in the latter case they are not mixed in the dry mash and left before the birds all the time, but are mixed in a certain amount of the mash and moistened. The birds should be given what they will clean up in a short time.

The oats are soaked for 24 hours and germinated for three days at a temperature of about 70 degrees. By this time the shoots will be about an inch long. When it is desired to mix these oats in the mash, three pounds (dry weight) of the oats per 100 birds are mixed with five pounds of the mash, and the whole is moistened with semi-solid buttermilk, four pounds of which have been dissolved in a quart and a half of warm water. The mash should be allowed to stand for about four hours before feeding. It will not take the birds long to eat it up. This means quite a little extra work each day, but the results will justify it.

Grit and Oyster Shell

THE BIRDS are undoubtedly shut in their houses now, so are not able to get out and pick up their grit in the form of pebbles and sharp stones. Since this grit acts in place of their teeth by aiding in the grinding of the food in the gizzard, it is quite necessary that it be supplied

them. Any good limestone grit, either put in hoppers or thrown on the floor will be of benefit to the birds.

They also need material to help them in the manufacture of egg shells. The most common way of supplying this material is by giving the birds all the oyster shell they want. This may be put in hoppers, also, or thrown on the floor, though the former is preferable. Keep it before them all the time.

The Drinking Water

THE DRINKING water is a mighty important factor in the flock in more ways than one. In the first place, it is a meeting place for all the birds in the flock; they all go there some time during the day. For this reason it is a dangerous place when there is an epidemic of colds or other disease. Watch it. When there is any trouble in the flock that is likely to spread, put potassium permanganate in the water so that the water has a cherry red color. It must be understood that the permanganate will not cure the trouble, but it will help to prevent the spread of it.

In the second place, the drinking water is important as far as egg production is concerned, for hens need water to produce eggs. Remember this, especially if lights are being used to induce late fall and winter egg production, and see that the water pan is kept full. The early morning is the time when the birds need the water most. See that they get it if you want eggs.

Along this same line, it will pay to take the cold edge of the water during winter; more water will be consumed if it is slightly warm than if it is ice cold, and this will result in more eggs. This can be managed by using small oil heaters, or where electric lights are used, by dropping an extension with a carbon bulb so that the bulb will be about half immersed in the water.

Keep the water clean by having a hood project part way over the pan to prevent birds from roosting on the edge of the pan or getting in the pan. Another good way to handle this matter is to cover the pan with two-inch mesh wire.

Colds, Roup, Pox and Bronchitis

THERE are various remedies and methods of treatment for these diseases, all of which, no doubt, are good, but the fact is frequently lost sight of that it is better to try to prevent them than to cure them with elaborate methods. A bird whose vitality is lowered is an easy prey to any of these troubles, and every effort should be made, therefore, to maintain the vitality of the flock. If the vitality is weakened by any factors, such as chilling, worm infestation and improper feeding—the three that are the most common—infection is very likely to take place.

The birds' quarters should, therefore, be made comfortable to prevent chilling. Any affected birds should be kept in a warm room until they improve. The latter has been found effective in many cases. The flock should be watched carefully for the presence of worms. If any are found, steps should be taken to rid the flock of them by the use of tobacco in the mash, disinfection of the soil, and moving of the flock to new ground. If improper feeding is suspected of being the cause of lowering vitality, get advice as to a correct ration from someone who knows. Very likely, there is a lack of vitamins which can be corrected to some extent by the use of cod liver oil at the rate of two per cent of the amount of mash or grain fed. This will supply vitamins A and D; B will be supplied in the

grain ration; and green food will supply whatever other vitamins are needed.

These steps to maintain the vitality of the birds will go a long way towards preventing colds, roup, chicken pox and bronchitis.

Loading Freight Cars to Prevent Claims

(Continued from page 8)

studied closely, it will be seen that the center gate really holds the ends of the boxes in place and places no strain on the sides of the lug. In some cases, due to the construction of the box ends, it makes no difference which way the face members are placed. An instance of this is the panel-head crate used for Florida tomatoes and Georgia peaches.

The next three figures show the essential features of different types of center gates. Figure 5 illustrates the center gate used when the face members can be placed horizontally, such as for the six-basket crate for Georgia peaches, the western apple and pear boxes, and the California grape lug. In Figure 6 is seen a center gate with the face members vertical. This type is used for the four-basket crate containing tomatoes, grapes or other small fruit, for the panel-head boxes, and for any other boxes where this position of the face members is permissible.

Faulty Bracing Causes Much Loss

Figure 7 shows a type of construction that is quite frequently found, but which is essentially wrong. The braces holding the two frames apart are not placed so as to brace the supporting members. Instead, they are placed against four of the seven face members. The remaining three face members are not supported in any way, for they should be held by the supporting members, which in this case are of no value since they are not braced at all. It is true some support is given by the nails holding the various boards together, but this support is so very small that it will fall the first time any force is exerted on the load.

While tight loading of the boxes lengthwise of the car is most important, attention must also be given to maintaining the arrangement of the boxes across the car. Practically all fruits require a circulation of the air in the car around and through the boxes in order to preserve the fruit in the best condition. To do this, circulation channels are left in the load by spacing the rows of boxes evenly across the car. It thus becomes necessary to use carstrips to preserve these spaces between boxes and prevent the load from falling against the side of the car as it goes around a curve.

Use of Carstrips

The details of the use of earstrips differ according to the type of box being loaded. In some cases every layer is stripped, while in other cases only the alternate layers are stripped. In every case, however, the top layer is stripped. Good practice means the nailing of every strip to every box with one nail, although in the shipping of citrus boxes, two nails through each strip into each box are necessary.

There are times when the carstrips serve another purpose in addition to keeping the rows of boxes from falling over. When a tight pack of fruit causes the box cover to be bulged and it is necessary to place the box in the car with the cover up, the strips nailed to each end of the box provide a means for carrying the weight of the boxes above without crushing of the contents. This object is obtained, however, only when the thickness of the strips is greater than the bulge of the box cover and when the strips are nailed to the boxes so that there is no possibility of the strips being shaken out of the proper position. If the strips are too thin or if they shift out of place, the weight of the boxes on top is carried directly by the fruit in the package with consequent damage.

Shippers of fruits who have had an extended experience covering many seasons have found out for themselves that the methods just described contain the secret of proper carloading, and that the practice of these methods brings success in the loading of freight cars to prevent claims.

The Small Fruits of New York

IN ACCORDANCE with an announcement sent us, we stated in the November issue that "The Small Fruits of New York" could be purchased from the Public Printer, Albany, N. Y.

We are now advised that the entire edition of the book has been turned over to the Agricultural Experiment Station at Geneva, N. Y. Anyone wishing to buy a copy should write to the station and enclose their check or money order for \$7.50.

Crop Yields Increasing

THE CROP yields per acre have been rising in the United States during the last 40 years. Since 1885 the average yields per acre have increased as follows: corn, 18 per cent; wheat, 17 per cent; oats, 14 per cent; and potatoes, 39 per cent. During the same period the combined acreage of these crops has increased about 52 per cent, and the total quantity of production has increased 72 per cent. Most of the increases in yield have occurred in the older sections east of the Mississippi River.

Statement of the Ownership, Management, Circulation, Etc., Required by the Act of Congress of August 24, 1912,

of American Fruit Grower Magazine, published monthly at Chicago, for Oct. 1, 1926. State of Illinois, County of Cook, ss.—Before me, a notary public in and for the state and county aforesaid, personally appeared Harry W. Walker, who, having been duly sworn according to law, deposes and says that he is the business manager of the American Fruit Grower Magazine, and that the following is, to the best of his knowledge and belief, a true statement of the ownership, management (and if a daily paper, the circulation), etc., of the aforesaid publication for the date shown in the above caption, required by the Act of August 24, 1912, embodied in section 411, Postal Laws and Regulations, printed on the reverse of this form, to-wit:

1. That the names and addresses of the publisher, editor, managing editor and business manager are:

Publisher—Magazines, Inc., 53 W. Jackson Blvd., Chicago, Ill.

Editor—None.

Managing Editor—C. E. Durst, 53 W. Jackson Blvd., Chicago, Ill.

Business Manager—Harry W. Walker, 53 W. Jackson Blvd., Chicago, Ill.

2. That the owner is: (If the publication is owned by an individual his name and address, or if owned by more than one individual the name and address of each, should be given below; if the publication is owned by a corporation the name of the corporation and the names and addresses of the stockholders owning or holding 1 per cent or more of the total amount of stock should be given.)—C. A. Tupper, L. A. Sisley, H. W. Walker, J. E. Montgomery (all at 53 W. Jackson Blvd., Chicago, Ill.); C. W. Price, 15 Park Row, New York City; E. G. K. Meister, 601 The Arcade, Cleveland, O.

3. That the known bondholders, mortgages and other security holders owning or holding 1 per cent or more of total amount of bonds, mortgages, or other securities are: (If there are none, so state.)—None.

4. That the two paragraphs next above, giving the names of the owners, stockholders and security holders, if any, contain not only the list of stockholders and security holders as they appear upon the books of the company but also, in cases where the stockholder or security holder appears upon the books of the company as trustee or in any other fiduciary relation, the name of the person or corporation for whom such trustee is acting, is given; also that the said two paragraphs contain statements embracing affiant's full knowledge and belief as to the circumstances and conditions under which stockholders and security holders who do not appear upon the books of the company as trustees, hold stock and securities in a capacity other than that of a bona fide owner; and this affiant has no reason to believe that any other person, association or corporation has any interest, direct or indirect in the said stock, bonds, or other securities than as so stated by him.

HARRY W. WALKER,
Business Manager.

Sworn to and subscribed before me this 22nd day of September, 1926.

(Seal)

A. C. BAMBERGER,
Notary Public.

(My commission expires Aug. 11, 1929.)

Just one spraying for control of scale insects, aphids, and red mite

ONE THOROUGH SPRAYING in the delayed or late dormant season with Sunoco gives practically perfect control of Scale Insects, Aphids and Red Mite.

In certain districts lime sulphur and also some petroleum sprays, thoroughly used, failed to save the crop. Sunoco sprayed but once on the same trees accomplished the seemingly impossible—wiped out the pests, and assisted nature to produce the best crops these orchardists ever had.

The record of Sunoco is startling. Scoffers and doubters who have used about everything else have emerged from their discouragements because Sunoco rid their trees of pests, and allowed record-breaking crops.

Sunoco's best boosters are those such as Fruit Grower Associations and City Park Departments who have actually seen its remarkable accomplishments, and who know from years of use its absolute safety. Harmless to trees when used as per specifications, it lacks the dangerous element which some people hold against oil sprays.

No petroleum spray oil is like Sunoco. Each day adds its testimony of proven successes, where neither ordinary petroleum sprays nor lime sulphur with nicotine saved the crop.

The State Entomologists of Connecticut in an actual test

against Aphids reported (Bulletin No. 275) that Sunoco Spray Oil (1 part oil to 20 parts water) "was the most efficient of the sprays used for the control of Aphids at the delayed dormant period."

The cost of Sunoco is less than lime sulphur and nicotine, and every gallon of it will cover 20 per cent greater tree surface, and it will kill more scale, Aphids and eggs of Aphids, Red Mite and apple red-bug.

It's impossible to tell you the story of Sunoco on this page, but if you will use the coupon, writing your name and address plainly, we'll send you a very valuable booklet on Pests and Spray schedules, that will be most helpful.

Send for it today and learn more about healthy trees. It's money in your pocket. The book is, of course, free.

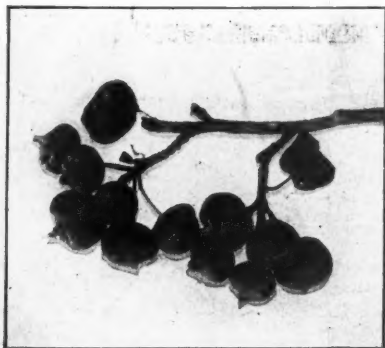
To help you with your fruit problems we maintain our own Scientific Division headed by a nationally known Entomologist. He and his assistants will gladly answer your questions pertaining to Spraying. Their advice costs you nothing.

This service we gladly render orchardists in the hopes that, by co-operating with you, we may have a small part in meeting the grave menace of pests which are ruining fruit crops, bankrupting farmers, and spoiling our shade trees.

SUN OIL COMPANY, Philadelphia

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Branches and Agents in Principal Cities



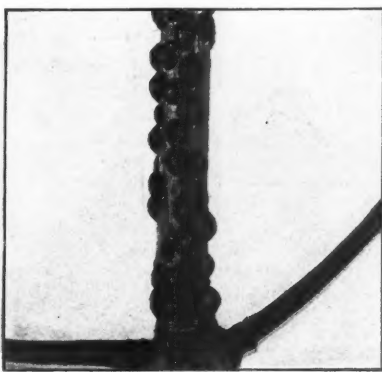
DWARFED AND DIMPLED APPLES
No market for such as these

Apple Aphids are the bane of apple growers, because they may become destructive any season without warning.

A one-spray control is possible with Sunoco if you apply it (1 to 20) just when the buds are open and the young leaflets are pushing through.

This will avoid the more expensive nicotine sprayings later in the season.

Apple orchardists in New England, New York, Ohio and the West have been remarkably impressed with the comparatively easy control and the small expense of Sunoco Spray Oil.



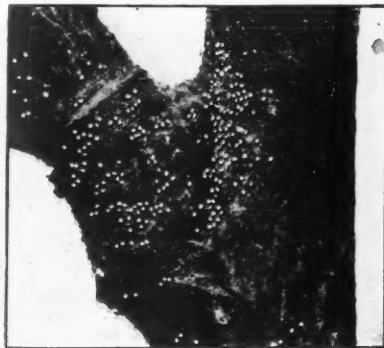
TERRAPIN SCALE
(Peach Lecanium)

This is a dreaded pest, as it hibernates on the branches in the half-grown stage. It seriously attacks plum, sycamore, maple and peach.

Lime sulphur will not kill it.

In the Dover, Delaware, district, Peach and Plum trees were overrun with this dreadful pest.

Practically every known killer (?) was tried and the Terrapin still thrived. About two years ago they began using Sunoco (1 part oil to 15 parts water) and today the district is practically cleaned up.



Enlarged six times **RED MITE**

A comparatively new but vicious pest because his life cycle in summer is two weeks. A number of generations will therefore occur in the growing season.

The way to destroy him is to cover the tiny red eggs in late dormant season with Sunoco Spray Oil (1 to 20).

One thorough spraying underneath the twigs as well as on top will effectually prevent hatching.

State Agricultural Experiment Stations consider lime sulphur and sulphur compounds practically useless, and recommend good miscible oils like Sunoco.

SUNOCO

SELF-EMULSIFYING
SPRAY OIL

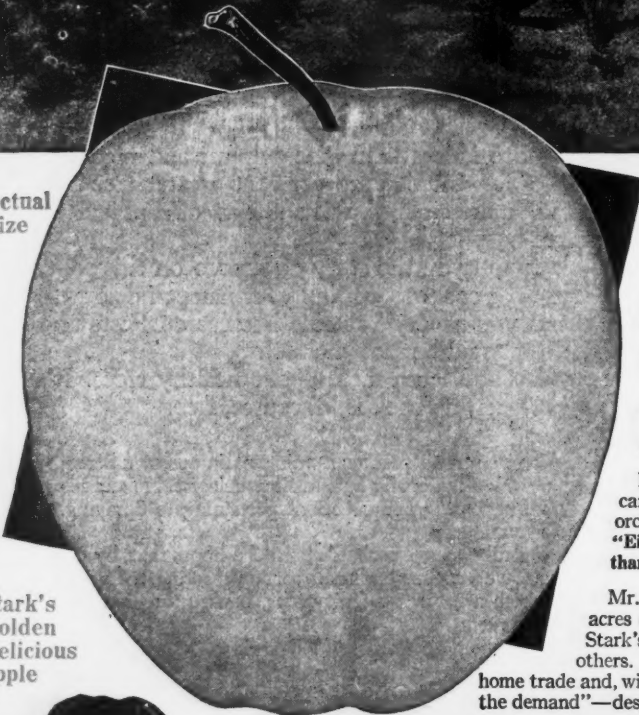
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Please send me, free, your valuable booklet, "Spray
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Sun Oil Co., Phila-
delphia, Pa.

"8 Acres of Orchard Will Yield More Income than 100 Acres of Grain!"

~Joseph Girardi, St. Clair Co., ILLINOIS



Actual Size



Stark's Golden Delicious Apple

"Fruit Growing is the most Remunerative of all the Agricultural Branches. The Work is Pleasant—Clean—With No Drudgery," also declares Mr. Girardi, whose orchard is shown above.



Jos. Girardi, St. Clair Co., Illinois Who gives Stark's Golden Delicious highest praise.

In a report to an Associate Editor of the American Fruit Grower Magazine, JOSEPH GIRARDI, orchardist of St. Clair Co., ILLINOIS, stated:—"Eight acres of fruit will produce a larger income than 100 acres in grain and stock."

Mr. Girardi gave the information that he had 14 acres of orchard:—the famous Stark Tree varieties, Stark's Golden Delicious, Stayman Winesap and others. He says:—"I have marketed my crop to the home trade and, with the exception of one year, could never supply the demand"—despite the fact that some of his Stark trees bore as

much as 21 bushels of apples each! That speaks well for the policy of planting the best quality trees to get the best quality fruit.

"I am growing fruit, first, because the occupation of orcharding is pleasant, clean and no drudgery—Second, because it is the most remunerative of all the agricultural branches—Third, because, eight acres of fruit, well managed, will produce a larger income than 100 acres in grain and stock."

It has been our pleasure, as well as privilege, to sell many trees to Mr. Girardi over many years—and among those have been—



Albert R. Smith, OHIO

FARMER MAKES \$194.20 PER WEEK AVERAGE TREE SALES

Albert R. Smith, Ottawa Co., OHIO, is a farmer who sells Stark Trees in spare time. In 5 weeks he has sold \$971.00—an average of \$194.20 per week. Thousands of other men are doing as well and better. YOU, too, would like this work. You will be PAID WEEKLY. Write for terms AT ONCE.

Stark's Golden Delicious

Sold Only By STARK BRO'S

STARKING, Stark Red Delicious, Stark King David, Stayman Winesap and our other leading varieties

Stark's Golden Delicious is the variety of which Mr. Girardi said:—"The public has long clamored for a long-keeping yellow apple of highest quality and you have it in Stark's Golden Delicious." This remarkable variety bore crops when 2 years old in 33 different States—and has borne crops every year since. Bore crops in worst frost-

blighted years because of its unique three-time blossoming habit—a frost dodger!

Send name and address on coupon—learn all about this unique apple and all the Stark big-crop, big-profit-making varieties of fruit.

2 Mighty Helpful Books—FREE

The first—Stark's Fruit Book. The standard of all fruit tree manuals. A book of "a thousand and one" handsome, true-to-life color photos and a TRUE GUIDE to profitable selection of every variety of fruit you should plant in your locality. SEND FOR IT TODAY!

The second—a rather wonderful and out-of-the-ordinary Book that will show you how to grow NEW and BETTER VEGETABLES and enjoy, in your own garden, NEW and DIFFERENT FLOWERS. This is the 1927 STARK SEED BOOK! Send for BOTH.

5 Seeds Stark's "Blight Resister" Tomato

This is that rather astounding Tomato variety that has made such a sensation and PRODUCED BIG CROPS OF BIG, SMOOTH TOMATOES IN SECTIONS WHERE WILT AND BLIGHT KILLED ALL OTHER VARIETIES! We want you to have 5 Seeds, with our compliments. Check FREE SEED SQUARE on coupon.

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